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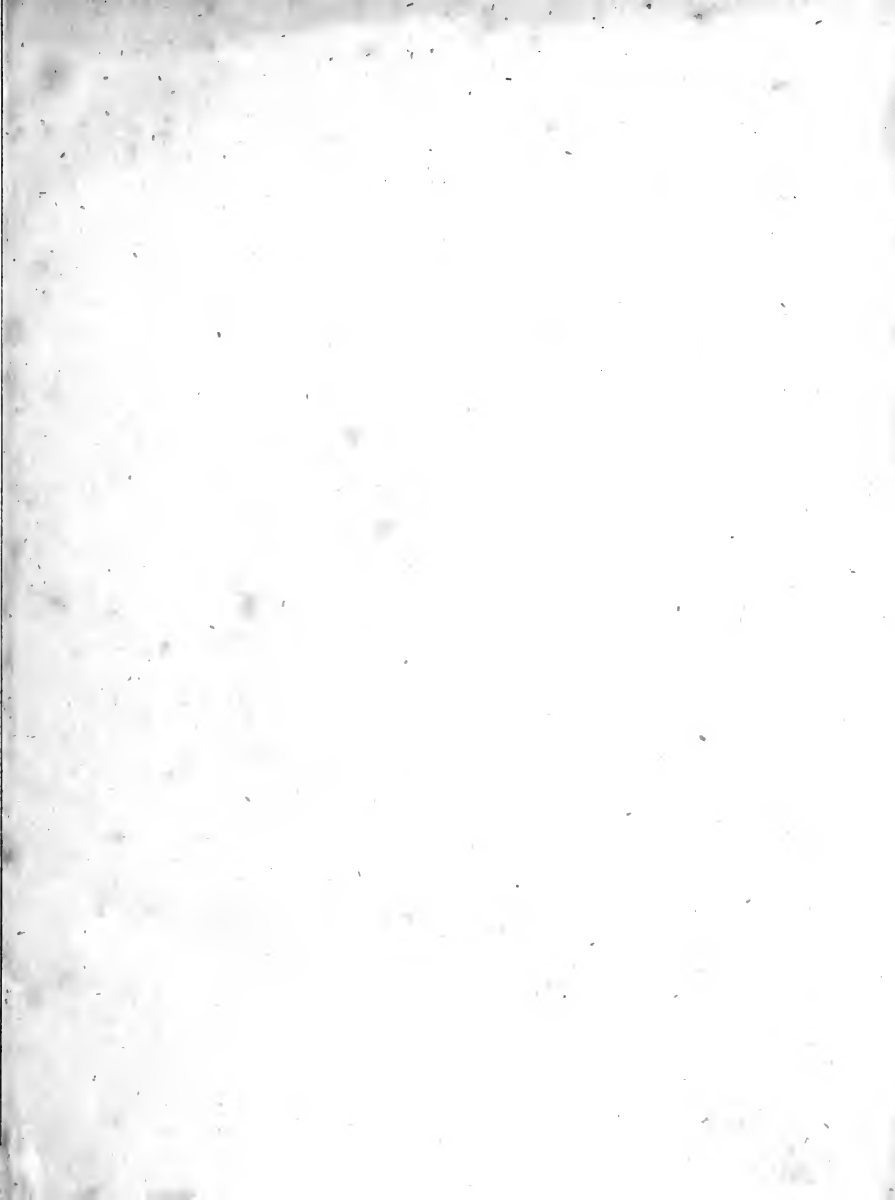


Samuel A. Eliot,
Bostoniensis.
1823.

Trans to Arnold
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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 309

LECTURE 10

STATISTICAL MECHANICS

ENTROPY

AND THE SECOND LAW

OF THERMODYNAMICS

LECTURER: [Name]

DATE: [Date]

TOPIC: [Topic]

OBJECTIVES: [Objectives]

REFERENCES: [References]

NOTES: [Notes]

THE
VEGETABLE SYSTEM.

OR,
The INTERNAL STRUCTURE,
AND
The LIFE of PLANTS,
Their PARTS and NOURISHMENT Explained;

THEIR
CLASSES, ORDERS, GENERA, and SPECIES,
Ascertain'd and Describ'd;

In a METHOD altogether NEW.

COMPREHENDING
AN ARTIFICIAL INDEX,
AND
A NATURAL SYSTEM.

With FIGURES of all the PLANTS; Design'd and Engraved
by the AUTHOR.

The WHOLE from NATURE only.

BY ⁸²² JOHN HILL, M. D. 1716-1778.

VOL. V. ²⁷³

Containing the entire Class of AGGREGATE or CLUSTER-HEADED PLANTS;
With Observations on a natural Method, so far as it regards the Connection of the Classes;
on the Production and Propagation of MULISH or INTERMEDIATE PLANTS;
and on certain PLANTS which are common to England and America.

³⁴ L O N D O N :

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H E R B S,

W I T H

Many FLOWERS assembled in a Common CUP,
S E R I E S the S E C O N D ;

Having the CHIVES distinct.

C L A S S the S E C O N D,
A G G R E G A T E S.

C H A R A C T E R of the C L A S S :

PLANTS with many perfect FLOWERS, forming a Head or Ball; surrounded by a Common CUP; each FLOWER having also its own distinct CUP, and simple FOOTSTALK.



C H A P. I.

Of the Place of AGGREGATE PLANTS in an artificial and a natural Method.

IT will be necessary to explain very distinctly the marks of this Class, and the construction of that head or ball of Flowers, which constitutes its character: not only to establish with certainty its own proper form; but to distinguish it precisely from the four Classes with assembled Florets which have gone before, and that of the umbrella'd or umbelliferous Plants which follows. Those four agree in one great character, of having many Florets collected together to form one Flower: The umbelliferous Class is distinguished from them, by having each Flower, though little, perfect and entire, and placed alone upon its separate Footstalk.

IT would seem as if these last had no connection with, or relation to the former; but thus far the natural and artificial methods agree, for these Classes in both, with the intervention of this, properly follow one another; and nature never loses the connection.

IT is true there is no connection between the four Classes of Plants, whose general Flower is composed of many assembled Florets, and the Class of umbelliferous or umbrella'd Plants; but this is placed between them. This gives that connection which they want with one another, and with this, they regularly constitute six succeeding arrangements of Plants; each truly separate in its character, yet all united by their plain relation.

THIS is not a place for entering at large upon the course of nature in the Vegetable chain; that will be shewn when we shall come to the detail of Plants in our natural method; in which there will be no distinction of Series or Order, Class or Genus, but every Plant will follow that which it next exceeds in some mark of certainty. The two methods are, and must be, distinct in their manner, as they are in their purpose; here we seek to know Plants; there we shall study, being known, to arrange them; here we are to seek general distinctions, there we are to obliterate them: we can only know things by distinction; we can only understand them by connection. The marks of Classes and of Genera, are arbitrary and artificial; nature knows no difference but of Species, from Species. These distinctions are vague and temporary, but her connections certain and eternal.

Two Genera differ by some arbitrary character, and it is by this distinction that we know the Plants which belong to each; but when we know them we can place them better; for we may then find natural relations easily, and we shall certainly give them the preference to artificial Characters. These doctrines, strange to the minds of many who are filled with modern systems, it may be needful to explain by instances.

THE great Swede observes, that in many Plants the Chives cohere lengthwise, so as to form a tube; he makes this the character of an artificial Class: this Character is found in Plants the most unlike in
nature:

nature: It is in the *Violet*, and in the *Sun-Flower*. The Class was ingeniously devised, and this mark answers its purpose; for by observing this tube of Chives in the *Violet*, the student is taught to look for it in the Syngenefious Class; and by the subsequent distinctions of Orders and Genera in that excellent writer, he will soon find to what genus and what name it belongs.

A MAN who had never seen a *Violet*, would thus plainly and easily be led to know the Plant; but he must be a poor philosopher if he would rest contented with that knowledge; he must entertain very limited, and very humble notions of science, if he would call this knowledge, Botany. 'Tis true that so far only artificial systems carry him: they have taught him to know the Plant with certainty; but he will easily perceive it has another place in nature: its general form does not agree with that of the *Sun-Flower*; nor will he be led to expect in it the same VIRTUES.

PERHAPS it will be thought the *Violet* is placed with less violence to nature here in our artificial method; but it was not to court that praise the Plant is mentioned. There may be a thousand artificial methods devised, and though that will be certainly best, which, with equal distinctness, comes the nearest nature, yet none of them are to be valued for more than they intend, nor preserved longer than they are wanted. They give the knowledge of individuals, and upon that, all other knowledge must be founded; therefore there cannot be too much care or labour employed in forming them; but when they have served their purpose, let them be rejected. Though particular knowledge is useful, it is general knowledge that is great: and when the structure shall be raised, let no one wonder we throw down the scaffold.

ACCEPT favourably, candid reader, so much on this great subject of a natural method here: we would have you entertain a just as well as great idea of this science; and by always having this superior light in view, you will perceive it more and more disclose itself upon you; you will advance in one as you pursue the other. The Class of Aggregates, whose rank in this our artificial system, is very near the real place the Plants will have in nature, affords a very plain and useful instance;

stance; it will encourage you perhaps, to pursue the track where the connection is much more obscured by necessary distinctions.

C H A P. II.

Of the true CHARACTERS of the AGGREGATE, and the UMBRELLA'D PLANTS.

IT has been always seen, that the *Assembled Florets* and the *Umbrella'd Cluster* had a strong connection, though something very dissonant in form divided them: 'Tis thus truth will flash upon the human mind, even where its constant light cannot shine freely. The relation in this case has been known, though the connection was not discovered; and that could not be till this Class of Aggregates was formed:

It has been said, that if the Florets of a Tubulate Flower, as *Tanzy*, were all raised upon long Footstalks, it would become an Umbell, from a Cluster: this was a bold and not an injudicious thought; but it would fail in many things: for, 1. The true essence of an Umbell, though perhaps that has not been enough considered, consists in the Flowers being perfect, and their *Footstalks* being subdivided: unless each Flower has its Cup, it loses its perfect nature, and becomes a Floret; and unless there be a *general* and a *partial* division of Footstalks, there is no Umbell. What has been called, by an error in terms, a *Simple Umbell*, is no more than an *Aggregate with long Footstalks*. The *Astrantia* and *Statice*, though hitherto placed in remote Classes, differ in this respect no otherwise than by a somewhat greater length of Footstalk to each Flower in one than in the other. More or less, longer or shorter, make no distinction between Species and Species; much less between Class and Class: and it is no matter that the greatest names give sanction to such Umbells. The modern systems have no such Class as Aggregates, for the received method does not admit of their distinctions as a character; but, in truth and nature, Scabious has as much right as *Astrantia* to be called an Umbelliferous Plant.

IN the second place, if we could have got over this difficulty, and admitted simple Umbells, yet the Tubulate Florets would not have made an Umbell, for they have no Cups.

THE proper character implied by any term, must be established justly before we can speak with that precision which is required by science of any relation to it, or correspondence with it. This being regarded, and the distinctive structure of assembled Florets, and the Umbell known, we may not only see the general truth that there is a relation between the Plants with Assembled Florets, and the Umbelliferous; but we shall find also that there is a connecting link between them.

AN Umbelliferous or Umbrella'd Plant, has the Footstalks of many Flowers arising from one point; and again subdivided in the same manner; the second like the first division, rising from one point again: there is an Involucrum at the base of each of these two divisions; and every Flower is perfect, having its own cups.

Now it is easy to see that Tubulate Florets, if raised on Footstalks, would not make an Umbell; for, 1. There would be no subdivision or second rising of Footstalks from a point; 2. There would be no second Involucrum, nor any thing in the place of it, although the general Cup might take the place of the first; and, 3. These would be Florets still, not perfect Flowers, as the Umbrella'd Plant should have; for they would have no separate Cups.

BUT though this advance from the Assembled Tubulate Flower to the Umbell, cannot be made without a threefold violation of that unaltered and unchangeable law of nature, which admits no gap in her gradations; there is yet a method of connection to be found. This Class of Aggregate Plants affords it.

LET it be understood that in the method of nature, the destruction of Classes will be effected always by intermediate Classes, as that of Genera will be by intermediate Plants. The connection which destroys two Classes by uniting them, is to be made by a Class which is truly intermediate; that is, which has part of the characters of the one, and
part

part of those of the other. Thus the Aggregate Class, properly and perfectly formed, having part of the Tubulate character, and part of the Umbelliferous, serves as a link or connecting joint between them: being thus disposed, it destroys two other Classes, which before were perfectly distinct by uniting them, and itself, the intermediate Class with them, into one greater arrangement: this will be again united with preceding and succeeding Classes by like means; till the whole Vegetable world is seen as one great and perfectly regular assemblage of Individuals, gradually rising one above the other.

WHEN the character of the Aggregate Class, is explained and ascertained as distinctly as that of the Umbrella'd, we shall not only perfectly understand the one, but, by the same means, as distinctly know the other; and having before, with equal care, known the true characters of Assembled Florets, we shall see the progress of Nature from those Assemblages of imperfect Florets, through the simply-clustered perfect, Aggregate, Flowers, to the more separated Umbelliferous: and thus know thoroughly, that most complex part of Vegetable Nature.

AN Aggregate Plant has many Floscules collected into a head, surrounded by a Common Cup; in these two particulars, it agrees with not only the Tubulate Flowers, but with the Radiate, Ligulate, and Associate, that is with all the four first classes; but it has *Flowers*, not *Florets*, to constitute this head; and each Flower has its *separate* and *distinct* Cup; and in these two particulars, of equal weight with the former, it agrees with the Umbelliferous Plants.

HERE then are two articles of agreement with one of these Classes, and two with the other. The Aggregate is therefore perfectly separate from both; and is placed at an exact distance between them. It must be allowed then that connecting Link, which was wanting to unite the four first Classes in our method, with the sixth; losing in that greater view, its own distinctive character, while, by uniting, it destroys also theirs; and thus far opening a way into a true natural method.

IT is useful to know this perfectly, not only with that higher purpose, but for the lesser uses also of an artificial method: for without these objects of the natural gradation, the characters of this artificial distinction would never be so deeply fixed in the student's memory; nor are they so perfectly necessary in any other place; since, for want of a precise determination of them, or of an accurate attention to them, this very natural Class has been strangely torn and divided; and a great many Plants truly belonging to it, have been thrown into others. Thus the *Eryngium* and *Astrantia*, the *Hydrocotyle* and *Echinophora*, have been called Umbelliferous Plants, though wanting the true and only distinctive character of that also natural Class; and perfectly agreeing in every article of the distinctions of this. The common Thrift might as justly be called an Umbelliferous Plant as any of these; and by a very little lengthening of the Footstalks of its separate Flowers, would be as well entitled to the character as any of them. But neither are they Umbelliferous Plants, according to the true character of that perfectly natural arrangement; neither could Thrift, by lengthening the Footstalks of its Flowers, be made one; if that were the case, the union of the six Classes would not exist; and nature would be more like art by far than God has made her.

THE connection between the four Assembled Classes and the Umbelliferous, is not to be sought from the Tubulate kind, as we have seen, for there want three of the four gradations; and therefore the Plants, which should in that way connect the two Classes, are not at equal distance from both: but taking the Aggregate, we see the exact proportion. The Associate Class also makes an advance between the three first, and this fifth. Its Floret opening into longer segments, and its Chives, though they stand near, not being united.

THE length of Footstalk to the Flower, though an accidental and uncertain mark, yet is the striking and obvious character by which the Aggregates differ from the Associates one way, and from the Umbelliferous Plants the other: let us see the consequence of giving more or less to this part.

SHORTEN the Footstalks of the separate Flowers of an Aggregate, and it will resemble an Associate; lengthen them, and it will resemble an Umbrella'd Plant: but in the one case, it will not be an Associate, for each Flower will still have its distinct Cup; and in the other it will not be an Umbelliferous Plant, for there will be no second division of the Footstalks. It will thus be, even in an artificial system, just what we have shewn it truly is in nature; it will resemble the two Classes, but it can be of neither; it is separate from both, and at equal distance between them: It is therefore the thing we sought; the true connecting Class; its distinctions from both are certain, evident, and invariable; and while we thus trace its place in Nature, it fixes the true Characters of those several Classes distinctly in our minds.

THE Class of Aggregates thus formed, and thus distinctively characterised, admits into its limits many Plants, which have before been arranged under different Classes; but it excludes none that have ever been numbered among those related to any of its branches.

THE several Genera which it comprehends might be found capable of various distributions; but to us the most obvious, always will appear the best. Among those who are fond of seeking deep for Characters, the thickness, the slightness, or the absolute want of a Receptacle, or the length, the shortness, or total deficiency of Footstalks to the separate Flowers, might serve as Characters of Orders, Sections and Subdivisions; but the one of these methods requires the tearing the head to pieces, and the other the cutting it asunder, to know the distinctions. We profess a dislike to these torturings of Nature, and to all Characters the eye does not at once distinguish; but if it were otherwise, these far sought and deep laid Characters of difference, would be rejected here as indeterminate, and therefore useless.

As to the Receptacle, it consists of two skins with a spongy matter between. Its thickness or slightness are only terms of more and less, not marks of true distinction, neither is it ever totally absent. It is very great in Teasell, it is scarce to be seen at all in Thrift, yet both these have it; and all Aggregates have it. The Stalk terminates in a head, surrounded by a Cup, within which, rise the separate Flowers. This Cup

is formed of the outer Rind of the Stalk. The inner Rind and Blea, terminate just within it in a kind of Button : this Button is the Receptacle, and from this the Flowers rise. In some, as in Scabious, the outer part of the Blea, rising up loose and light, forms a kind of spongy matter between the two parts ; in others, there is scarce any thing of this, as in the Thrift, yet even here there is some, and the Structure is the same always.

IN respect of the Footstalks of the separate Flowers, they are in some short, which is usually where the Receptacle is thick, and in others longer, where that part is thinner ; what would otherwise make the thickness of the Receptacle running up into these Footstalks ; but the difference of longer or shorter, is, like the former, only a mark of more or less, and can have no place in true distinction.

THE Receptacle in these Plants is therefore of no importance ; and all that truly relates to the Footstalks of the Flowers as distinctive, is that they are always simple and undivided : whether they are long, short, or seem wanting, is of no importance ; but if they were divided, it would indeed be of consequence, for it would remove the Plant out of the Class, placing it among the Umbelliferous kinds.

IT is needful that a Class comprehending so large a number of Plants, should have its Orders or Subdivisions ; which we shall take, as in other instances, from differences which are obvious, in parts open to the eye ; and dependent not on degree, but absolute form.

ALL Aggregate Plants have the general Cup leafy in some degree ; therefore no accurate distinction can be made from that : but every Flower having its separate Cup ; and these differing essentially in their form, composition, and division, and being always present while the Plant is in Flower, and very evident and open to the sight, the Characters of our necessary Subdivisions or Orders, may be properly taken from them.

THAT the form, structure, and composition of the head of an Aggregate Plant, may be perfectly laid before the eye, we have represented

ented it in the first eight Figures, Pl. 1. in two very different Plants, the Scabious and the Teasell. In the one of these, the Scabious, Fig. 1, 2, 3, 4. the composition is very evident, and the parts all large and proportioned in the usual way; the Receptacle rising but a little, and the separate Cups of the Flower being very obvious: in the other, the Teasell, Fig. 5, 6, 7, 8. the Receptacle swells to so immoderate a length, and the Chaffs which are placed between the Flowers, confuse the view so much, that the eye of a student might be at first sight perplexed. However, when the regular form of the Scabious head is first known, the length of the Receptacle in the other will be considered only as a difference of degree, not of kind; and the Chaffs between the Flowers in these heads, being of no importance to the Classic Character, will give no confusion. The cautious eye being thus informed in one instance, the most dissimilar in aspect of all that can occur, will find no difficulty in any other. Let it only be remembered on this and all other occasions, that the greater alliances of Plants, as Classes, take in only their greatest Characters, not all of them: the rest remain for a variety of subordinate distinctions of Order, Genus, and Species. Thus the Chaffs of the Receptacle here neglected in the Classic Character, are so obvious as to make part of a very distinct Generic mark; and so it will be found of all the others. If we received all into the Character of Classes, these would shrink from their use and nature, and we should have only Genera.

THIS premised, that the whole scheme of distribution may be familiar, let us lead the student by the hand, from a view of the exterior form, to the composition and construction of the Aggregate Head thus instanced, at Pl. 1. Fig. 1. he sees the Scabious Head entire, as it shews itself upon the Plant while growing, he perceives this is a Cluster of Flowers *a*, surrounded by a Common Cup *b*, and thus conceives distinctly enough the general idea.

LET him blow these asunder with his breath, or part them with his finger, and he immediately sees, as at Fig. 2. that every one of these lesser Flowers is perfect in itself; he perceives that each has its own Cup, Fig. 2. *a*. that the Body of it, 2. *b*. no where joins, or is connected with any other, and that the union of such a number of them

them into one head, results only from their rising from one Receptacle or Swoln Top of the Stalk, *z. c.* and being enclosed in one great Cup.

LET him proceed farther, by tearing off some of the Flowers, and he will lay bare the Receptacle in part, as at Fig. 3. *a.* and let him afterwards, if he please, cut open the Head perpendicularly, and he will see that this Receptacle is as represented at Fig. 4. *a.* nothing more than the Swoln Crown or Head of the Stalk.

THIS Dissection is not needful to his understanding the Character of the Class, for he knew it was an Aggregate, when he saw at Fig. 2. the separate Cups of the Flowers: but it will prevent doubt, that the Head of Teafell, or any such Plant, assumed a different nature for being extended in length. He will see that the exterior form of Teafell at 5 and 6, do not more perfectly agree with those of Scabious, at 1 and 2. than the inner construction at 7 and 8, with the inner structure of Scabious at 4.

THE Classifical form, being now perfectly understood, we may proceed to the subordinate Distinctions of Orders.

THOUGH the Common or General Cup of the Aggregate Class is alike or nearly alike in many, there are great differences in the separate Cups of the distinct Flowers. These differences are sufficiently obvious and certain, to give the Characters of absolute distinction among the Plants, into a number of subdivisions. In some, this particular or separate Cup is hollow and plain; in others, it is folded; in others, it is simply cut down into one series of Segments; in others, there are two or more ranges; and there are some, in which this separate Cup, is only one hollow leaf; and others, where it is composed of several such hollow Leaves.

THESE distinctions will give a fixed and certain division of the Classes, into no less than seven separate Orders, which will greatly ease the search after any particular Plant.

The Seven ORDERS of the AGGREGATE CLASS are these :

O R D E R I.

PLANTS having an Assembled Head of Flowers with separate Cups, in which this separate Cup is of one piece entire, and *even* at the Edge or Brim. Pl. I. Fig. 9.

O R D E R II.

WHOSE particular Cup is entire, but *folded* at the Brim. Pl. I. Fig. 10.

O R D E R III.

WHOSE particular Cup is simple, or cut into a single Series or Range of Segments. Pl. I. Fig. 11.

O R D E R IV.

WHOSE particular Cup is double, or has two Ranges of Segments. Pl. I. Fig. 12.

O R D E R V.

WHOSE particular Cup is til'd, or has several Ranges of these Segments. Pl. I. Fig. 13.

O R D E R VI.

WHOSE particular Cup is formed only of one hollowed oval Leaf, Plate I. Fig. 14.

O R D E R VII.

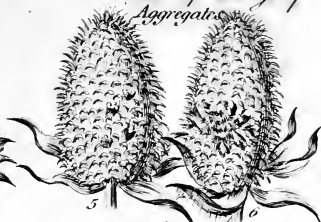
WHOSE particular Cup is formed of several oval hollowed Leaves. Pl. I. Fig. 15.

CHARACTERS of the Class of
Aggregate

Pl. 1.



The Head of Scabious
Entire.



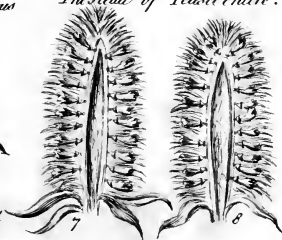
The Head of Teasel entire.



The Head of Scabious
parted.



The Scabious Head
Cut open.



The Head of Teasel
cut open.



The Scabious Head
laid Naked.

The seven Orders of the Aggregate Class.



9
An even
Cup.



10
A
Folded
Cup.



11
A
Simple
Cup.



12
A
Double
Cup.



13
A
Wild
Cup.



14
A
Cup of
many
Leaves.



15
A
Cup of many
Leaves.



16
Teasel
with its
Flower.



17
Thrift
with its
Flower.



18
Globewort
with its
Flower.



19
Scabious
with its
Flower.



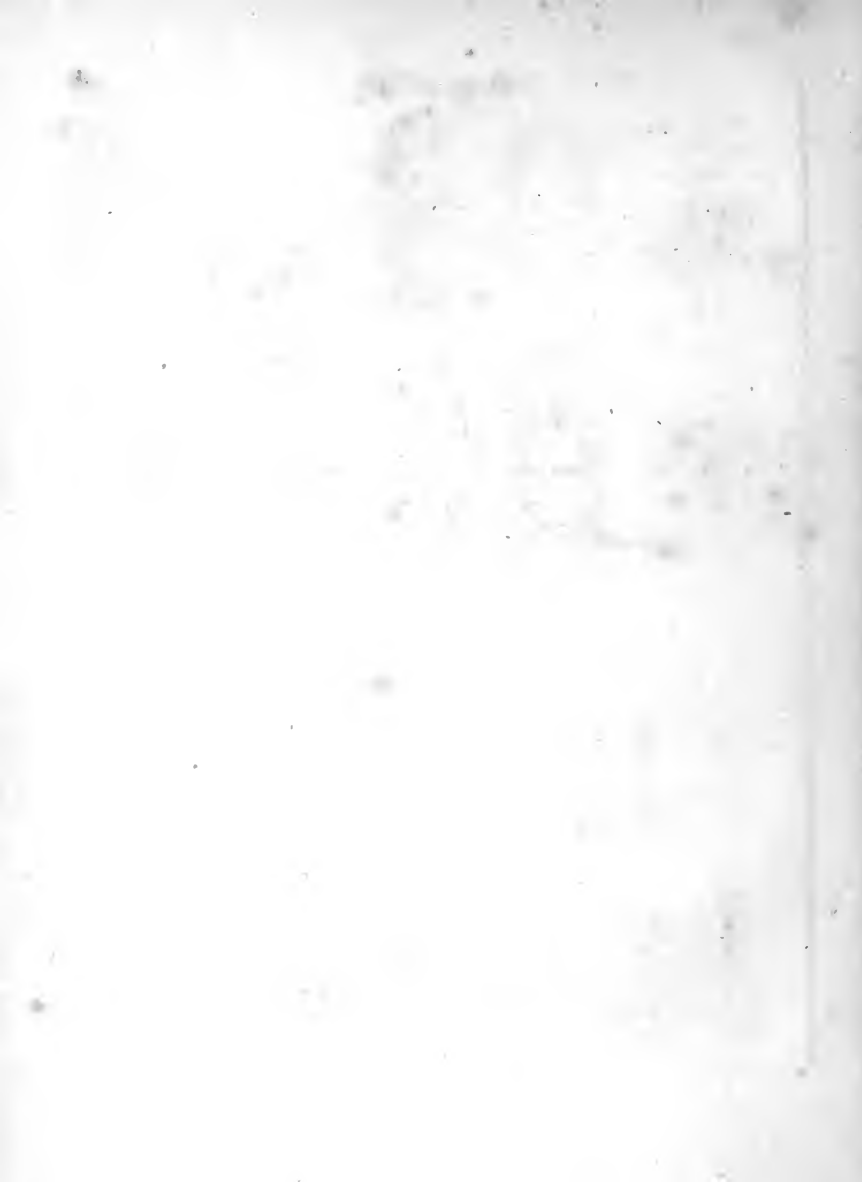
20
Globe
with its
Flower.



21
Birdweed
with its
Flower.



22
Thraudwort
with its
Flower.



IN the seven preceding instances, the Cups are figured alone, separated from the Common Head, and divested of their Flowers; that the distinct form of each might be seen, without the incumbrance or confusion of any other part. But that it may be also seen how they appear in complex Nature, they are represented in the succeeding Figures with the Flowers in them.

Fig. 16. gives an example of the *Even Cup* in the *Teeffel*, with its Flower.

Fig. 17. gives an example of the *Folded Cup* in the *Thrift*, with its Flower.

Fig. 18. of the *Simple Cup*, in the *Globewort*, with its Flower.

Fig. 19. of the *Double Cup*, in the *Scabious*, with its Flower.

Fig. 20. of the *Til'd Cup*, in the *Globe Thistle*, with its Flower.

Fig. 21. of the *One-leaf'd Cup*, in the *Birdweed*, with its Flower.

Fig. 22. of the *many-leaf'd Cup*, in the *Threadwort*, with its Flower.

UNDER one or other of these Orders, may be arranged all the Aggregate Plants; for Nature, so far as yet known, has given no other differences in their particular Cups: yet it should seem, that between the Plants of the sixth and seventh Order, there will be at some time found whole Genera of intermediate Characters; for it is not usual with Nature to leave chasms in her works, or to pass over great deficiencies in number of the parts. We are here, though in an artificial system, tracing her steps, so far as may be in such fetters, with an awful reverence.

WITH respect to the five first Orders, their differences arise in a way perfectly natural, and the four succeeding may be deduced plainly from the first, by a measured Scale, in the same method of gradual division, by which Plants themselves, in the true scale of nature, ascend above one another by a measured addition of parts. The folded Cup is no more than the even one, with an exuberant edge; the simple Cup is only the folded one, cut down between the Plaits; the double Cup is the simple one, throwing off its outer Rind toward the base, in one series; and the til'd Cup is only the double one, with Films split off outward, in several series.

THIS

Thus far we see the course of Nature's Distinctions evident to reason. Between these five, and the two following, there is the Distinction of a new tribe or family; though we have not encumbered the Student's mind with it in this place, because the objects which come under it are few. The other Cups are all composed of Films, but those of this and the succeeding Order are of Leaves. That this Tribe should begin with a Cup of one Leaf, is most natural; and it would seem also natural that it should ascend by two-leav'd, three-leav'd, and by four-leav'd Cups, to the Order which stands next in our account, and which has five Leaves; but this is a research for farther time: Its place will not come properly, till we have proceeded to these Plants in a natural method. There is much of the world yet to be searched; and there is much time for it. I have reasons to conjecture that the Plants here supposed to exist, may be found far north; that tract of land will be now better searched, than has been heretofore; and gratitude demands this publick testimony, that it is to the favour of the Hudson's Bay Company alone, I owe the means of this new enquiry.

HERBS,

H E R B S,

W I T H

Many Flowers affembled in a Common CUP,
S E R I E S the S E C O N D ;

With the C H I V E S diftinct.

C L A S S I V.

A G G R E G A T E S.

O R D E R I.

With the particular Cup of each Flower of one piece,
entire, and even at the Brim.

G E N U S I.

T E A S E L L.

D I P S A C U S.

Character of the Genus.

The Head is oval, and the general Cup is longer than the
Flowers.

1. SERRATED TEASELL.

Plate 2. o. a b b.

Plate 2. Fig. 2.

Character of the Species.

The Leaves are cut like a Saw along the Edges, and unite
at the Base.

FULLAR'S TEASELL.
Dipsacus Fullonum.

Fig. 2. a b.

THIS is a biennial, native of our ditch sides, and flowers in June, a
Plant of six feet high: The Stalk is pale, the Leaves are of a strong
green, the Scales of the Head are redish, and the Flowers are crimfon.

NATURE has given in the Head of this Plant a mechanic instrument, a kind of Brush for dressing cloth. We cultivate it; and the Heads grow larger, and the ends of their Scales turn backward, and become more useful.

2. JAGGED TEASELL.

Plate 2. Fig. 1.

Character of the Species.

Dipsacus Laciniatus.

The Leaves are cut in deep Segments, but unite at their Base.

Fig. 1. a b.

THIS is a biennial, native of France and Germany, and flowers in July. The Stalk is firm, upright, five feet high, and whitish. The Leaves are of a fresh and fine green; they grow together at their base, the Stalk running through them; so that they make a kind of basin for holding water. The Scales of the head are whitish; the Flowers are crimson.

G E N U S II.

S H E P H E R D's R O D.

V I R G A.

Character of the Genus.

The Head is round, and the general Cup is shorter than the Flowers.

Plate 3. o. a b.

Of this Genus we know but one Species.

R O U G H S H E P H E R D's R O D.

Plate 2.

SHEPHERD's ROD.

Character of the Species.

Dipsacus Pilosus.

The Leaves have two Appendages or small Leaves at their Base.

Plate 3. a b.

THIS is a biennial, native of our waste grounds, but not very common; a singular and pretty Plant, flowering in July and August.

The

TEASELL

Pl. 2.



Serrated Teasell.

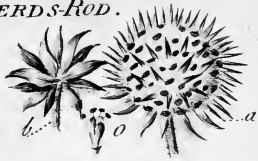
Jagged Teasell.





SHEPHERD'S-ROD.

Pl. 3.



Generic Character.



Rough Shepherd's-Rod.

The Stalk is a yard high, rough to the touch, of a yellowish green, and spreads into wide branches. The Leaves are also of a yellowish green. The Scales of its buttony Heads are green. The Flowers are white. They cover the Head at once, making a complete white Ball, which appears fring'd all over with black; the Summits, which hang out beyond the Body of the Flower, being of that colour.

IT is frequent about Denham; we have it also in the neighbourhood of Woolwich; but I think not nearer London.

LET it not seem strange that I have disjoined this Plant from the preceding. Though the generality of late, as well as earlier authors, have called it a Teafell; Nature disclaims the alliance, and some have seen it. Vaillant^a has called it a Devilsbit, and referred it to the Scabious kinds; but still the Plant is neither Teafell nor Scabious, but a distinct Genus; and it is lucky that it has a distinct and known name, as it so much deserves it. ^b Linnæus, excellent and accurate almost every where, acknowledges that Vaillant did not much amiss in referring this Plant to the *Scabious*: but he would have not this alone, but all the Teafells be referred also thither. I wish I could, with justice, speak of his thought in this, as favourably as he of Vaillant's. To unite Genera in artificial methods, tends always to confusion; and here it cannot be done without violation of Nature: the separate Cups of the Flower in these Plants, is the great Character; and this in Teafell is simple and entire; in Scabious, double and divided; they differ more than as Genera, they are of different Orders. Haller, observant always of Nature, calls in the Habit^c against Vaillant, and the Scales between the Flowers; but there is a Scabious^d which this more resembles than it does the Teafell, and many Aggregates have Chaffs between the Flowers. Both will, I hope, allow me the new Genus.

^a Memoir. 238.

^b Hort. Cliffort.

^c Facies, p. 675. Enum. St. Helv.

^d Scabiosa Syriaca, Plate 27. of this Volume.

G E N U S III.

B U R W E E D.

X A N T H I U M.

Character of the Genus.

The Head is an obtuse Cone; the general Cup is equal in length to the Flowers.

Plate 4. o. a b.

T H O R N Y B U R W E E D.

Plate 4. Fig. 1.

Character of the Species.

Xanthium Spinosum.

The Leaves have no Footstalks; and the Stalk is thorny.

Fig. 1. a b.

THIS is an annual; native of Portugal, and flowers in June. It grows to two feet and a half high. The Stalk is pale; the Leaves are of a fine grass green; the Thorns, which grow by three's near the Bases of the Leaves, are brown. The Flowers are whitish, with a tinge of green; and the Fruit, which is rough, and grows on other parts of the Plant, is of a pale Olive colour.

U N A R M E D B U R W E E D.

Plate 4. Fig. 2.

LESSER BURDOCK.

Character of the Species.

Xanthium Strumarium.

The Leaves have Footstalks; and the Stalks have no Thorns.

Fig. 2. a b.

THIS is an annual; native of our ditch banks, waste grounds, and old dunghills, but not common. It rises to a foot and a half high; and flowers from July to September: a rugged Plant of irregular growth, but with singularity enough to supply the place of beauty. The Stalk is of dirty red, spotted with black; or a very deep gloomy purple. The Leaves are of a faint green. The Flowers are pale and whitish. There are, beside these, distinct Fruits or Seed Vessels, on different

BUR-WEED.

Pl. 4.



Generic Character.



*Thorny
Bur-weed.*



*Unarmed
Bur-weed.*



different parts of the Plant. The Seed Vessels are the part which occasioned its being called Burr, and Little Burdock, for they are covered with a kind of hooked Spines.

It is said this Plant will cure the Evil: And one may be led to suppose there are valuable qualities in it, because Nature has given it in a manner to the whole world: a circumstance that occurs in very few Plants; indeed, with respect to America, in so few, that it has been thought Europe, and that vast country, had none in common.

THIS is a problem so much contested; and the present instance decides it so fairly, that it may not be amiss to enter upon it, somewhat at large, now we have so fair an occasion.

AMERICA furnished us so many new Plants, and we received from thence so little that bore even a resemblance to what we had before in Europe, that imagination, which always outruns judgment, and in its rash haste, generally concludes upon too slight premises, presently declared there was no Plant common to the new world, as it is called, and the old. We had been accustomed to receive very different Plants from different places, and therefore supposed they produced only different; and when we thought this of Europe and of Asia, we might very well believe it of America, even in respect of all the world. But it should have been considered, that different countries might produce the same Plants with our own, though we had not received them; and there was the more reason to suppose this, because as singularity pointed out among many new things which should be collected, what was least like our own, was most likely to be first regarded.

FARTHER researches have shewn, that howsoever different the climate may be in Europe and in Asia, yet there are Plants common to both. I have received this Xanthium from China; and Linnæus declares it native of Ceylon, and of Japan. The Common English Water Lilly, both the white and yellow, grow also in the East-Indies; and the Common Arrowhead, is as frequent in Sumatra as in England. It is so with many other Water Plants; but not with all,

nor is it limited to these: there is much more to be yet asserted concerning these; but let the truth which is a stranger, display itself by just degrees.

IT should seem in the first place, that there are a certain number of universal Plants, which grow in every kingdom; and are Vegetables of the Globe, not of this or that quarter of it.

WE shall find most of these to be the Plants, whose situation renders the power of Elements almost equal in whatever part they grow. The greater number of them are inhabitants of high mountains and deep waters; here the temper of the air is less altered by the climate, and we therefore may less wonder at seeing the same Plants: but all that are common to so remote regions, and so different climates, are not the natives of these peculiar places. The Xanthium, our present subject, grows upon the rubbish about Canton, as freely as at Nottingham; nor is this a single instance.

THERE is a certain tract about the North Pole, wherein, for the whole circuit, the same Plants are found; perhaps it is the same about the South Pole, but the country is unknown. As it is hard to say how far North America extends, or what are the limits where it joins, if it does join, with other northern countries; we are accustomed to call the extrem northern world, by a name deduced from its place, and to give one term to the extent of kingdoms this way, to whatever others they belong; calling them the Polar Countries. If we examine the Vegetable products of these countries, we shall find them nearly the same in all; and in a certain latitude, that difference between American and European Plants, which has been fancied so absolute, ceases entirely.

THE Plants of the extrem North, so far as we know, are all the same; all low; and all of what are usually called the imperfect Kinds: From this northern tract, where the circuit of the Globe is confined in very narrow limits, they seem to have extended every way, and to have encreased in parts, and stature.

THERE will be a place in the course of this work, to examine that encrease; and see how much of it is owing to heat and other causes: for when we shall come to treat Plants in the method of Nature, it is from this northern point, and this most simple state, we are to trace them: A few short observations only can be admitted here, to lead the way to a belief of that most certain fact, that America and the other parts of the world, have some Plants in common.

IN the Latitude of 83, which is as far as men have sailed, we find Mosses only; the Conferva in the waters; the Ulva in the bogs; the Coralloide Mosses on dry land; these are the simplest of all Plants; and these only are found at that extrem North distance, whatever be the country.

I HAVE not had the opportunities for an exact research, which are now offered, nor indeed has any; but what I know from faithful correspondents hitherto, is this.

IN the Latitude of 82, which is but a very small advance from that most Northern part just mentioned, are found Strawberries. They are found every where round the Pole at this distance.

BUT this is not all: there are many other Plants which take in larger circles, at more distance, and yet are equally, and as certainly universal: The common Violet is found on the coasts of Baffins Bay, in Greenland, in Nova Zembla, and in Muscovitic Tartary, in the Latitude of 76. This is a Circle, in all parts of which, I doubt not, Violets are found, as we see them in so many places there, and those so distant.

I have received our common Mouse-Ear from Cumberland Isle, from Greenland, Lapland, North Cape, and Siberia; upon examination, all these places lie in the Latitude 73; and it is hence reasonable to conclude, that this Plant is also universal at that distance from the Pole.

FARTHER than this, my opportunities of personal enquiry have not enabled me to determine; but even upon this foundation, that the
Plants,

Plants are universal from 73 degrees to the Pole, we might be very reasonably led to doubt the proposition, that any one quarter of the Globe was altogether without those common to another.

WHY should it be thought strange a Plant should travel by its Seeds from 73 degrees to 50. We know the great opportunities there are of conveyance by winds and sea; we are sensible that the quantity of Seeds produced by Plants is so great, that if out of ten thousand, one only shall live, the Plant will be preserved, and propagate itself where that shall fall.

IT is not needful we should suppose a sudden flight of the Seeds of any Plant of 23 degrees: let us consider the length of time there has been for this migration; let us take into the consideration also, the nature of the Plant, and it will appear so far from wonderful, that Mouse-Ear should be found both in Europe and America, that there will be required almost a miracle to prevent it. From Cumberland Isle and Greenland, the course is almost due South; and we very well know, there are not wanting North winds, in that part of the world, to forward it. The Plant Mouse-Ear, produces Seeds altogether innumerable; they are very minute, and they are winged with such a quantity of Down, that they will float in the air a long time, even in a calm. They may then be carried very far by winds; and the Plant is so hardy, that no soil prevents its growth; rocks, absolute naked rocks, receive the Seed, and are often covered at vast heights, and in an amazing manner, by the Plant. What then prevents its propagating itself gradually Southward to a certain Latitude; and from the Northern Countries, spreading itself, not only to Newfoundland, but thence also to Pennsylvania, Virginia and Carolina?

THOUGH it will grow in extreme cold, we know that is not necessary to it, because it grows in England, and other parts of Europe: nay it thrives better here; for in the very cold Countries just mentioned, it never exceeds three inches in height, whereas with us, it will be five or six.

To confirm this opinion farther, Mouse-Ear is found in Newfoundland, and in some other parts of our Colonies; it would be rash to have judged from this alone, that it was native there; for the Seeds of many common Pasture Plants, may have gone from hence with Grass Seed, which our Planters often have from us; but the finding the Plant there, and the seeing by what a natural and easy course it may have come thither, from the more Northern Countries, not from Europe, together, amount to as good proof as reason can expect in such a case.

If it be asked, why, on the same principle, many more Plants are not also found native in North America and Europe? the answer is easy. This is not the only one; but many are not to be expected on this plan. The extreme North does not produce a very great number; and of these, few have the advantages of light Seeds and natural hardiness, that we find in Mouse-Ear.

ANOTHER observation will naturally occur here to the Reader; that the northern Plants are, so far as hitherto named, extremely short or low: it is so universally, so far as I have seen: and height in Vegetables seems certainly, though not universally, to encrease with the Sun's power. The Mosses of 83 degrees Latitude, are the lowest of all Plants; the Strawberries of eighty-two lie on the ground, yet are a little higher than those Mosses; the Violet of Baffins Bay is somewhat taller than the Strawberry; and the Mouse-Ear of seventy-three, is, to all these, gigantick.

It would be vain and absurd, to suppose that all Plants followed this law of encrease exactly, for then the difference of soils and accidents could be allowed no power; and the Plants of every country would be all of one height: yet I must be permitted to say here, what will be proved in its due place by a multitude of instances; that notwithstanding the multitude of exceptions, there is such a law; and that were all accidents equal, which they never are, or can be, the effects would be more visible. The Mouse-Ear, which is in a manner universal in seventy-three, grows to three inches high; the Jerusalem Artichok, which is native of 3 degrees, grows to 12 feet. We may

trace in these extreme instances, the outlines of a proportional advance in growth, as in climate. The Jerusalem Artichok is 70 degrees more South; and it is seventy times as tall. The Hollyhock of Borneo, has the same height of twelve feet; and Mouse-Ear its original three inches at the same distance North in Asia, as America.

THESE are the Extrems, so far as I have found; he that would fill up the intermediate degrees, must find the Plants on which the climate acts with least interruption; and he must measure these in places where they have their genuine stature. Nightshade upon the Downs, is three inches in height; upon a Dunghill, it is a yard or more; but neither of these is the true, that is, the natural height of the Plant.

THERE will be an opportunity, in the course of this work, to examine these differences of the same Plant, and their causes: the principles of that enquiry are laid down in a preceding volume; only let the general idea of them have so much weight here, as to shew that a rule may be just, though liable to a million of exceptions.

THAT difference in the stature of a Plant, which we see can arise in the same place, from any one of many accidents, we must not be astonished to find take place in very remote countries; nor must we bring this different height, when there is no other, as a reason to suppose two Plants not the same, which are the product of countries, supposed not to have any in common. The XANTHIUM, which is our present immediate subject, is one of Nature's universal Plants; more so indeed, than any of those which take their little circles round the Pole. Beside being found throughout Europe and Asia, Africa affords it; and what is more to our immediate purpose here, America.

NOR is it limited to any one part of the new world any more than of the old; I have received it from *Quebec*, from *Carolina*, from *St. Christophers*, and from *Jamaica*; nor does the Plant in any of these places differ from the wild English kind, any other way than in stature and luxuriance of growth. With us the Plant is eighteen inches high; in Canada it grows to six feet; there is in the general aspect, an appearance of difference, but, when examined, it vanishes.

THIS

THIS Xanthium, therefore, is a proof that there are Plants common to America, and to the other parts of the world; nor is it the only one by many. The question so long disputed, seems capable therefore of a tolerably fair decision.

UPON the whole, it seems that there are some Plants, though not many, which are common to Europe and to North America; and that there are many common to South America and Asia.

WITH respect to the North American, there are beside those already named, a *Conyza*, common to that country, and the Pyrenæan mountains, and some others. I had last year an opportunity of seeing, beyond contest, that some Mosses, common on Hampstead Heath, grow also in America. Mr. Gray, Seedsman, in Pall-Mall, received many Plants from thence, in a condition of growth, and their roots were covered with the Great Hypnum, the Bog Sphagnum, and two or three other kinds frequent there.

RASH observations might add vastly to the list of Plants; for Plantain, Sorrell, and many other common things in our pastures, are as frequent about our Plantations there: but the Seeds of these have doubtless been accidentally carried over from hence; and in this enquiry, great distinction is to be observed between such Plants and the proper natives.

WITH respect to the products of South America, which are common to Asia, there is also to be great caution used, to find out from their place and other accidents, which are native, and which have been in reality brought thither from Asia: for we very well know that the first settlers in South America, were very intent on raising in the West-Indies, the products of the East. However, if we leave out of the account, such valuable articles, we shall find still a great number, which men could never be interested to carry over, and which are in places far from settlements. The *Costus* of Ceylon, is found also in Surinam and the Brasils; the *Canna* is common to Coromandel and Jamaica; and *Feuille's Alkekengi* is equally common in Peru and Borneo.

WE see therefore by this enquiry, that no part of the world has altogether distinct Plants from all others. The Alpine Plants are common to the high mountains, and the underwater Plants to the deep Lakes of Europe, Asia, Africa, and America. In these particular situations, the universality of Plants, is as evident as in the circles near the Pole; and beside those we have already instanced, there will be found in the course of this work, several more American Plants, which, though understood to be distinct Species, are no more different than the Xanthium of Canada and England.

G E N U S IV.

P I N K W E E D.

K N A N T I A.

Character of the Genus.

The Head is flat, and is composed only of five Flowers: the general Cup is entire, cylindrical; and cut into a few sharp Segments at the Brim.

Plate 5. o. a b.

1. C R I M S O N P I N K W E E D.

Plate 5. Fig. 1.

Character of the Species.

Knantia Orientalis.

The Leaves are linear and wav'd; the Heads stand on simple Footstalks.

Fig. 1. a b.

THIS is an annual, native of the Greek Islands, and flowers in July. It is a slender twiggy Plant, of a yard in height; and of a very singular and not unpleasing aspect. The Stalk is of a dark green, and spreads toward the top in a wild, but picturesque manner. The Leaves are of a fresh and showy green; the Flowers are of a fine glowing crimson. The separate Flowers are ranged in so even and regular a manner in the Head, that the whole appears only as one Flower, not a little

PINKWEED.

Pl. 5.



Crimson Pinkweed.

Azure Pinkweed.



a little resembling, at a distance, a common single Pink; whence its English name.

2. AZURE PINKWEED.

Plate 5. Fig. 2.

Character of the Species.

Knantia Occidentalis.

The Leaves are lanced and indented; the Heads stand on divided Footstalks.

Fig. 2. *a b.*

THIS is a biennial, native of Canada and other parts of North America; a very handsome Plant, flowering in August. The Stalk grows to two feet and a half high; it is slender, tough, of a strong green, and very much branched. The Leaves are of a dark and coarse green: the Flowers are of a perfectly fine blue. The Plant is little known in Europe, and does not succeed well with us in gardens. If the Seeds be sown in Spring, they seldom come up; if in Autumn, the young Plants die in the Winter. I had it here at Bays Water, in 1762, on one of my Sand Hills, from Seeds from Canada, sown in Autumn, and care in sheltering the Seedlings in hard weather. Plukenet * seems to have named this, and, as I think, no other Author.

G E N U S V.

F A I R W E E D.

A L L I O N I A.

Character of the Genus.

The Head is flattened, and composed only of three Flowers; the general Cup is entire and cylindrick; but cut into deep sharp Segments at the Brim.

Plate 6. *c. a b.*

1. HEART-LEAV'D FAIRWEED.

Plate 6. Fig. 1.

Character of the Species.

Allionia Violaacea.

The Leaves are Heart-shaped; and the Cup is cut into five Segments.

THIS is an annual, native of Portugal, and flowers in June; a very handsome Plant, and well entitled to its fair name; which is but its

* Alm. 335.

country

country name in another language. It rises two feet and a half high. The Stalk is tender and branched. The Leaves are of a very fine Grass green; and the Flowers are of a beautiful Violet blue.

2. OVAL FAIRWEED.

Plate 6. Fig. 2.

Character of the Species.

Allionia incarnata.

The Leaves are oval, with one half running farther down the Footstalk than the other. The Cup is cut very deeply into five Segments.

Fig. 2. a b.

THIS is a biennial, native of Spain; a Plant of two feet high; flowering in May and June. The Stalk is tough, and of a blueish colour. The Leaves are of a strong blue-green. The Flowers are of a very delicate pale crimson.

IT must be easily seen that this Genus approaches very nearly to the preceding; but they cannot be joined. Difference in degree, be it ever so great, can never constitute a just distinction; but difference in number, be it ever so little, so long as it is fixed and certain, may. There is also a mark of difference in the Seeds, but we do not send the student so far; nor delay him so long for a genuine character: in Pinkweed, the Seeds are hairy at the top; in Fairweed, they are smooth. This is mentioned to confirm the propriety of keeping the two Genera distinct; but the obvious character in the Flowers is sufficient to establish it.

G E N U S VI.

F E V E R W O R T.

D O R S T E N I A.

Character of the Genus.

The Head is flat, and composed of many Flowers; the general Cup is entire, flat, and undivided at the Edge.

Plate 7. o. a b.

1. H E A R T

FAIR-WEED.

Pl. 6.



Generic Character.

Heart leav'd Fair-weed.

Oval Fair-weed.





FEVERWORT.

Pl. 7.



Generic Character.



Heart-leaved Feverwort.



Pinnatifid Feverwort.

1. HEART LEAV'D FEVERWORT.

Plate 7. Fig. 1.

Character of the Species.

Dorstenia Alexiteria.

The Leaves are Heart-shaped, sharp pointed, and indented; and the Head is squared, and wav'd along the Edge.

Fig. 1. a b.

THIS is a perennial, native of Campeachy; and flowers in May. A Plant of most extreme singularity, resembling nothing in the whole Vegetable world, except two other Species of the same Genus; and of qualities as peculiar as its form. The Leaves are three or four inches long, and rise separately from the ground, with long slender Footstalks. They are of a fine bright green; but the colour soon fades, and they become brown, and droop. The Stalk, which supports the Head, rises naked and simple from the Root, and is slender, and ten inches high. At its top stands a flat Head of Flowers, half buried in a spongy receptacle of a square form, which fills the bosom of the Cup, and grows into one body with it. The colour of the Receptacle is pale; and the Flowers are of a whitish green. They are small, one leaf'd, and enclosed in a little Cup, which grows to them, as the Cup does to the Receptacle; so that they are very difficultly separated or examined. Hence has arisen the difficulty of giving a true character of the Plant, by those, whose systems made it necessary to introduce every part.

2. PINNATIFID FEVERWORT.

Plate 7. Fig. 2.

Character of the Species.

Dorstenia Drakena.

The Leaves are cut almost to the middle Rib, into a few Segments, with entire Edges; the Head is oval.

Fig. 2. a b.

THIS also is a perennial, native of Vera Cruz, and other parts of the Spanish West-Indies; a Plant not at all less singular than the preceding; and flowers in June. The Leaves are of a deep strong green; they rise singly from the ground, with long Footstalks, to the height of about eight inches. The Stalk which supports the Head, is about seven inches high, naked and slender. The Head is green, and the Flowers are of a greenish white.

3. FINGERED

3. FINGERED FEVERWORT.

Plate 8. Fig. 1.

Character of the Species.

Dorstenia Contrayerva.

The Leaves are pinnatifid, with a fingered aspect, and the Segments are ferrated: the Head is square, and undivided at the Edge.

Fig. 1. *a b.*

THIS is a perennial also, native of Peru, and flowers in May; a Plant agreeing in its manner of growth with the two preceding. The Leaves are eight or ten inches high; they grow singly from the ground, on long slender naked Footstalks. They are of a faint green; and their Stalk and the middle Rib, are often brown or reddish. The Head is perfectly square, flat, and undivided at the edge; it is of a green colour; and the Flowers are also of a greenish white. The Stalk, which supports this, is simple, naked, slender, and brown; and is about eight inches high.

THE root of this third kind, is the *Contrayerva* used by Apothecaries: and a much larger quantity than they employ, is consumed in dyeing. The three Plants are so like, and the people who collect Drugs so negligent, that the Roots of them all are gathered under this name; as the Roots of three or more Plants, are used under the name of *Virginian Snakeweed*; or, as the *Swiss wound Herbs*, consist of every Plant they lay their hands upon.

4. SIMPLE LEAV'D FEVERWORT.

Plate 8. Fig. 2.

Character of the Species.

Dorstenia Caulescens.

The Leaves are lanc'd; and the Heads are square.

Fig. 2. *a b.*

THIS is a perennial, native of *Campeachy*; where it grows on the most barren rocks, to the height of two or three feet: A Plant altogether unlike the three preceding in its general aspect, but having the same wonderful kind of Head as they have.

THE Stalk is weak, reddish, and tough; and has but few Branches. The Leaves are broad, but of a lanc'd shape; and wav'd at the Edge.

The



FEVERWORT

Pl. 8.

2.



Vol. 5.

Finger'd

Feverwort.

Simple leaved Feverwort.

The Heads do not rise on peculiar Stalks from the ground, as in the three preceding kinds, but one Stalk produces a great many: each is placed on a slender Footstalk, growing from the bosom of a Leaf. The Heads are greenish, and the Flowers are whitish, but nearly of their own colour. It flowers in August.

NATURE seldom varies so extremely in the Species of the same Genus, as in this Plant; but the genuine character is so absolute, and so wonderfully distinct from all others, that there can be no doubt about the joining them.

G E N U S VII.

S H E E P R O T.

H Y D R O C O T Y L E.

Character of the Genus.

The Head is rounded; the general Cup is composed of four sharp pointed Leaves. The separate Flowers are raised on short and slender Footstalks.

1. FIVE FLOWERED SHEEP ROT.

Plate 9. o. a b c.

Plate 9. Fig. 1.

Character of the Species.

Hydrocotyle Vulgaris.

The Head is composed only of five Flowers. The Leaves are round and crenated; and have their Footstalks inserted in their Centre.

Fig. 1. a b.

THIS is a perennial, native of our boggy grounds; a very low and small, but very singular Plant; flowering in June. The Stalk never rises from the ground, but runs upon it, rooting at the Joints, and is of a whitish green. The Leaves are of a fresh, though not strong green; their Footstalks are pale, and about an inch or little more in height. The Flowers are small and white; the Heads stand upon very short Footstalks, rising from the main Stalk, usually together with a Leaf.

IT has been a custom to range this with the Umbelliferous Plants, but its very aspect might have shewn with how much violence to Nature. Here are no second Involucrum, nor divided Footstalks; and we have shewn there is no Simple Umbel. The Plant is a true Aggregate. If the Segments of the Cup were united into one Body, and the Flowers drawn down into it, you would have a Dorstenia.

2. MANY FLOWERED SHEEP ROT.

Plate 9. Fig. 2.

Character of the Species.

Hydrocotyle umbellata.

The Head is composed of a great many Flowers. The Leaves are wav'd at their Edge; and have the Footstalk fixed in the Centre.

Fig. 2. a b.

THIS is a perennial, native of Pennsylvania; a Bog Plant as ours, and very like it in the general aspect. It flowers in June. The Leaves are of a fine fresh green, and are placed on long Footstalks; the Flowers are small and white.

ONE would imagine Linnæus had excepted against the other Species of this Genus, as not belonging to the Umbelliferous Plants, by giving the word Umbellata, as the trivial name of this: but whatever exception (and there is sufficient) lies against them, is good against this also.

3. KIDNEY LEAV'D SHEEP ROT.

Plate 10. Fig. 1.

Character of the Species.

Hydrocotyle Americana.

The Leaves are roundish, slightly lobated; and have a slit in the Front, which reaches quite to the Centre.

Fig. 1. a b.

THIS is a perennial, native of North America, and flowers in June. It creeps upon the ground, with pale, slender Stalks, irregularly extending themselves every way. The Roots are little Tufts of slight and short white Fibres at the Joints, from which the Leaves and Flowers rise also. The Leaves are of a delicate, but not strong green

on

SHEEP-ROT.

Pl. 9.



Five flower'd Sheep-rot.



Many flower'd Sheep-rot.

SHEEP-ROT

Pl. 10.



Kidney leaved Sheep-rot.



Arrow leaved Sheep-rot.

Pl. 5.

on the upper side ; and paler underneath. The Flowers are small and white.

IT will be observed, that we retain the received trivial Latin names of all the Species in the margin ; but the reader will be just enough to understand, that we retain them as convenient, rather than good ones ; and though we use them, we by no means approve them. They are a kind of simple, short notices of Plants, which though they might easily have been better, as in this instance (for why should this Species be called American, more than the former ?) yet will serve the purpose as they are. They are appellations in which the Botanic world, at present, seem to be agreed ; and they serve here instead of a multitude of Synonyma, often as bad as themselves ; for they make a kind of catalogue, to which every modern book is an Index.

IT is the more necessary for us to retain them, because we often find it necessary in compliance with the natural characters of a Plant, to change its Genus ; but this, by the help of the trivial key, is always to be understood by those who chuse to consult other Authors, without confusion.

4. ARROWED SHEEP ROT.

Plate 10. Fig. 2.

Character of the Species.

Hydrocotyle Asiatica.

The Leaves are arrowed with a Kidney-shaped Base ; and many rise together at a Joint.

Fig. 2. a b.

THIS is a perennial, native of the East Indies, a low Plant, but very leafy, and therefore exceedingly conspicuous on the ground ; flowering in May. The Stalks are weak and tender ; the Leaves are of a very fine and fresh green. The Flowers are white and inconsiderable.

AUTHORS were by no means agreed to what Genus to refer this Plant for some time. Herman * understood it to be a kind of Corn Sallad, (I am afraid it would have proved a fatal one ;) and Plukenet † thought it of the family of Crowfoots.

* Par. Bat. 238.

† Alm. 314.

5. LINEAR SHEEP ROT.

Plate II. Fig. 1.

Character of the Species.

Hydrocotyle Chinenfis.

The Leaves are linear and obtuse; the Head has many Flowers.

Fig. 1. *a b.*

THIS is a biennial, native of China, a Plant altogether singular for one of this Genus, by the discordant shape of its Leaves; flowering in August.

THE Stalk is slender but firm; it creeps upon the ground as the others; and sends usually two Leaves from the same joint, with each Tuft of Roots. The colour of the Stem is pale; the Leaves are of a very fine fresh green; the Flowers are white.

THE Leaves of this Plant, so perfectly different from those of the four other Species, rob us entirely, of what they would indeed but ill have left, the common English name. The Leaves of the first are so well rounded, and stuck on the Stalk in so odd a way, without breaking in upon the margin, that the English shepherds, who had too much cause to know the Plant, called it Pennywort; and as there was a different Plant entirely, which had the same kind of Leaves*, they were soon taught to distinguish the two by the places of their growth, calling this Marsh Pennywort, and that Wall Pennywort. Thus far the difficulty was to be got over by the help of an epithet: but here is a Plant, whose Flowers plainly declare it to be of that Genus, but whose Leaves are not in the least like pieces of money.

WE think it very essential to have a distinct English name to every Genus, but cannot always answer for the propriety of those we use; because where there is an old received one, we prefer it always, for that reason, to a better that should be new or but less known: therefore we have retained to this Genus, an English name, as old and well received as the other, though perhaps founded in error, and which will

* *Cotyledon umbilicus veneris.*

SHEEP-ROT

Pl. II

3.



Sincar
Sheep-rot.



suit all Species, because it is not taken from the shape of the Leaf; this is SHEEP-ROT. The shepherds have long thought it gives that terrible disease, the rot, to their sheep, because they usually fall into it when they are kept in pastures where it grows; but the fact may be true, though owing to another cause: this Plant never grows but in wet ground; and wet ground will give the rot, whether this grows there or no. They called it White-Rot, to distinguish it from Sun-Dew, which is another boggy Plant, accused of the same mischief. As we have no reason for the epithet in one case, we may drop it in the other.

G E N U S VIII.

H E A L T H W O R T.

P A N A X.

Generic Character.

The Head is broad and flat; the general Cup is short, and composed of narrow sharp pointed Leaves; the separate Flowers are raised upon long Footstalks, and are composed each of five Petals, which turn back at the End.

Plate 12. o. a b c.

THIS is the character of the Seed-bearing or Female Plants; there are, beside these, Male Plants of the same Species, whose Head is globular.

1. FIVE LEAVED HEALTHWORT.

Plate 12. Fig. 1.

GINSENG.

Character of the Species.

Panax quinquefolium.

The Leaves stand by threes; and each division is into five.

Fig. 1. a b.

THIS is a perennial, native of Tartary; and of Canada, Virginia, and other places in North America; a Plant of wonderful estimation in many parts of the world. It grows to a foot or more in height. The Stalk is ting'd with crimson; the Leaves are of a fresh and bright green; the Flowers are white; after these come Berries of a Kidney-like shape,

shape, and of a strong crimson, full of a yellowish pulp, in each are two Seeds. It flowers in August.

THIS is the Plant whose Root is the famous *Ginseng*, of which the Chinese think such wonders: they esteem it a cure for almost all diseases; and fancy it will make men any thing but immortal. It has been try'd with us, and is found a cordial and restorative, but its virtues by no means answer the Chinese accounts.

THEY might well be deceived who looked for the same virtues in the Root *Nindsu*, which is a species of an umbelliferous Plant, *Sium*, altogether different from this. We have it usually stale and bad; and to encrease the disappointment of those who have sometimes thought of taking it, we have found that when it has been bought at its weight in gold, the ingenious Chinese had lodged lead in its middle to encrease the profit.

2. THREE LEAVED HEALTHWORT.

Plate 12. Fig. 2.

Character of the Species.

Panax trifolium.

The Leaves stand by threes; and each division is into threes again.

Fig. 2. *a b.*

THIS is a perennial, native of Virginia, a low Plant, flowering in July. The Stalk is pale; the Leaves are of a faint and yellowish green; the Flowers are white; the Root has the flavour of the other, but weakly.

A G G R E G A T E S.

O R D E R II.

Whose particular Cup is entire, but folded at the Edge or Brim.

G E N U S

HEATH-WORT.

Pl. 12.



Generic Character.

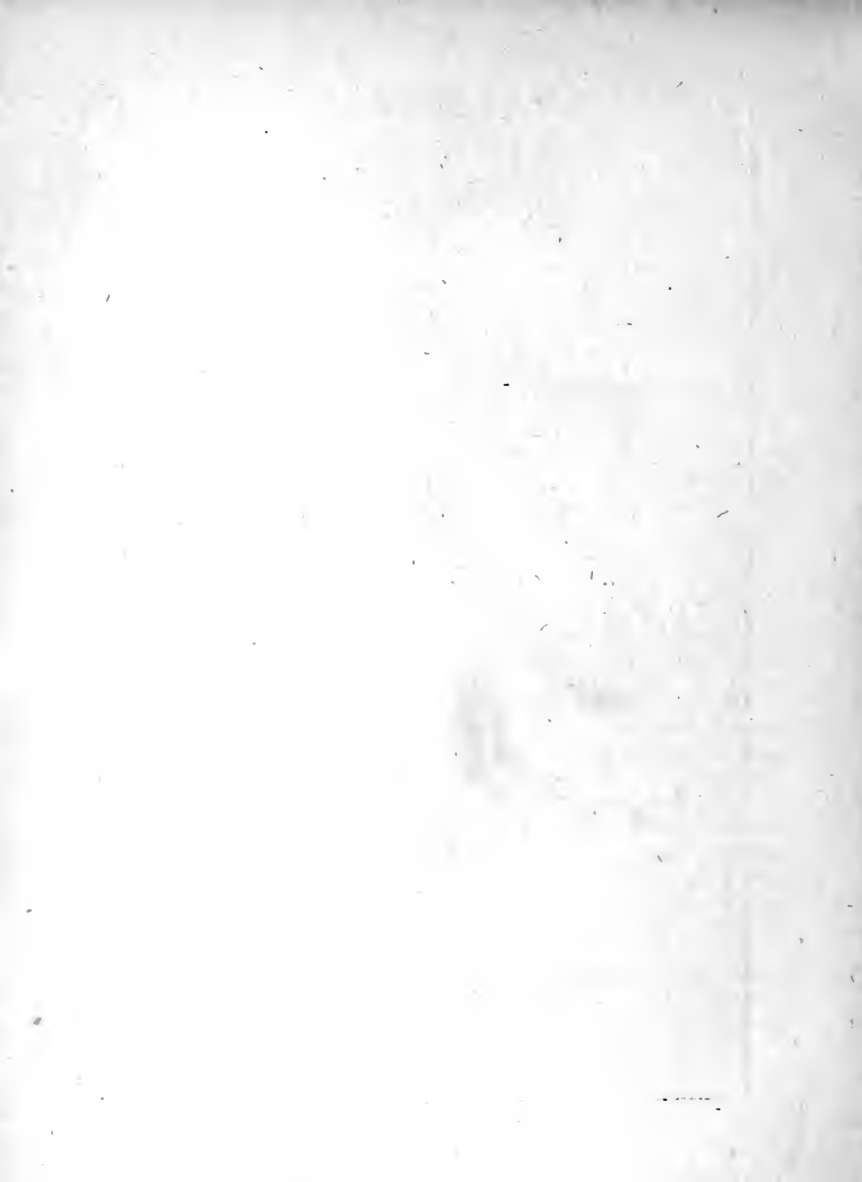


Three leaf'd
Heath-wort.



Five leaf'd
Heath-wort.





G E N U S I.

T H R I F T.

S T A T I C E.

Character of the Genus.

The Head is globular, and composed of many Flowers.

The general Cup is til'd, with broad Scales; the Flower is composed of five Petals; and the separate Cup is membranaceous toward the Rim.

Plate 13. o. *abcd.*

1. L I N E A R T H R I F T.

Plate 13. Fig. 1.

Character of the Species.

Statice Armeria.

The Leaves are linear; the Stalk is round, and supports only one Head.

Fig. 1. *ab.*

THIS is a perennial, native of our sea coasts in many places; a very beautiful Plant, flowering in June. The Leaves are of a very fine grass green. The Stalk is round, smooth, of a pale green, and eight inches high. The Flowers are of a very beautiful crimson.

THIS is one of those Plants which we have termed universal, or common, in a manner, to every part of the earth. Beside its most natural place of growth, the sea coasts, it is frequent on mountains; the Alps in Europe, and the Andes in America, afford it; and the sea coasts almost every where. Its aspect varies as much as its place; on mountains the Stalk scarce rises to a Finger's height; in salt marshes it grows to seven or eight inches, and the Flowers are larger in proportion: for this reason, two or three Species have been made out of it by the less accurate writers, even while they overlooked such as were truly distinct. I have received it from Cumberland Isle, not an inch high, and with the head scarce so big as a large Pea; but the very same Plant has grown in my garden to the usual stature. It is easily traced from the extreme North countries, down throughout North, and even South America, as we have mentioned of some other Plants.

2. L A N C E D

2. LANCED THRIFT.

Plate 13. Fig. 2.

Character of the Species.

Statice Speciosa.

The Leaves are lanced; the Stalk is two-edged and forked, and has some Films.

Fig. 2. *abc.*

THIS is a biennial, native of Russia and China; a very handsome Plant, flowering in July and August. The Leaves are of a deep, but somewhat blueish green. The Stalk is ten inches high, pale and firm. It usually divides into two branches in a forked manner, and each supports several heads of Flowers; these are large but pale, often white entirely.

3. HIGH RIB'D THRIFT.

Plate 14. Fig. 1.

Character of the Species.

Statice flexuosa.

The Leaves are oblong, oval, obtuse, and high rib'd: the Stalk is branch'd.

Fig. 1. *ab.*

THIS is a perennial, native of Siberia; a very handsome Plant, flowering in September. The Leaves are of a very pale green, with high white Ribs. The Stalk is whitish, weak, and about a foot high. The Flowers are of a very fine crimson.

THIS Plant varies like the common Thrift in stature, and in the bigness of the heads. I have seen it from three inches to half a yard in height, and in some Plants the Heads are full as big as a Nutmeg, and perfectly regular; while in others, they are slight, small, irregular, and divided. Soil and situation do all this. They often change the aspect of a Plant in some degree; but never affect its characteristick parts.

4. WOODY

THRIFT.

Pl. 13.



Generic Character.

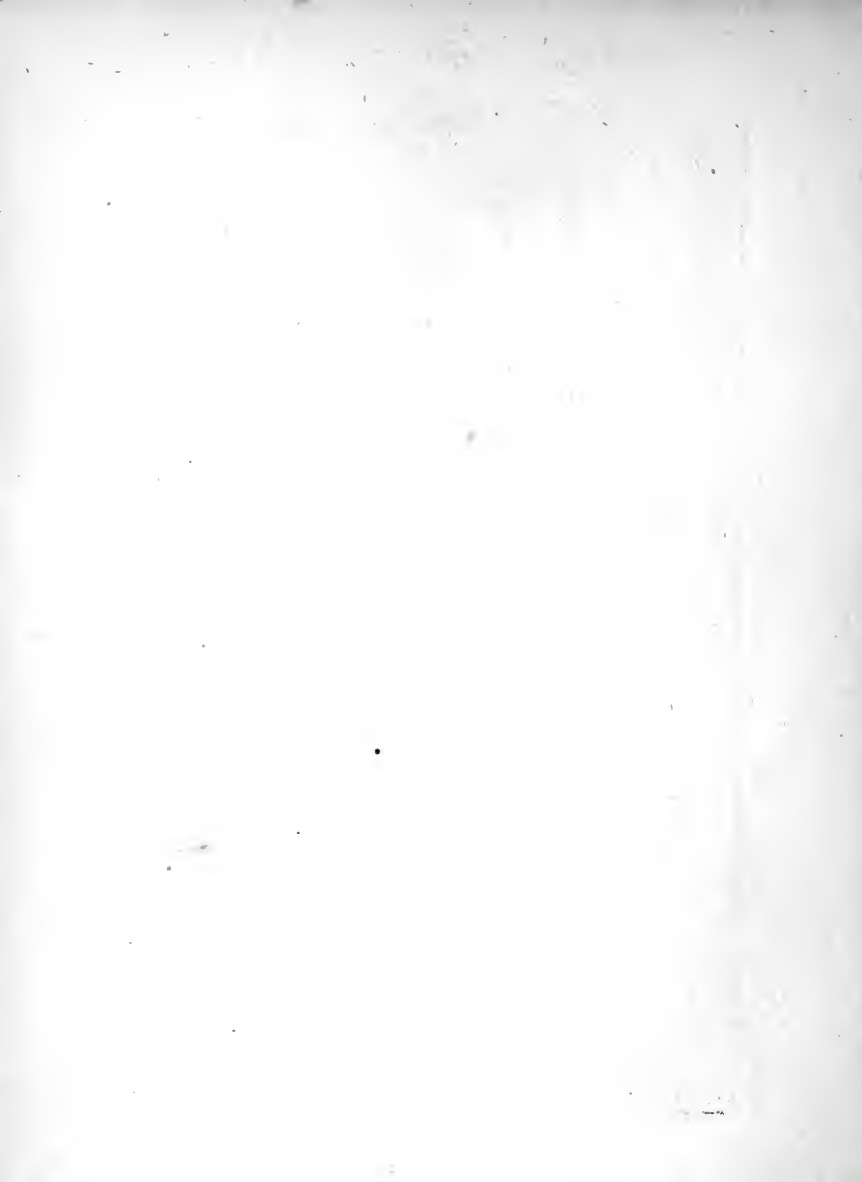


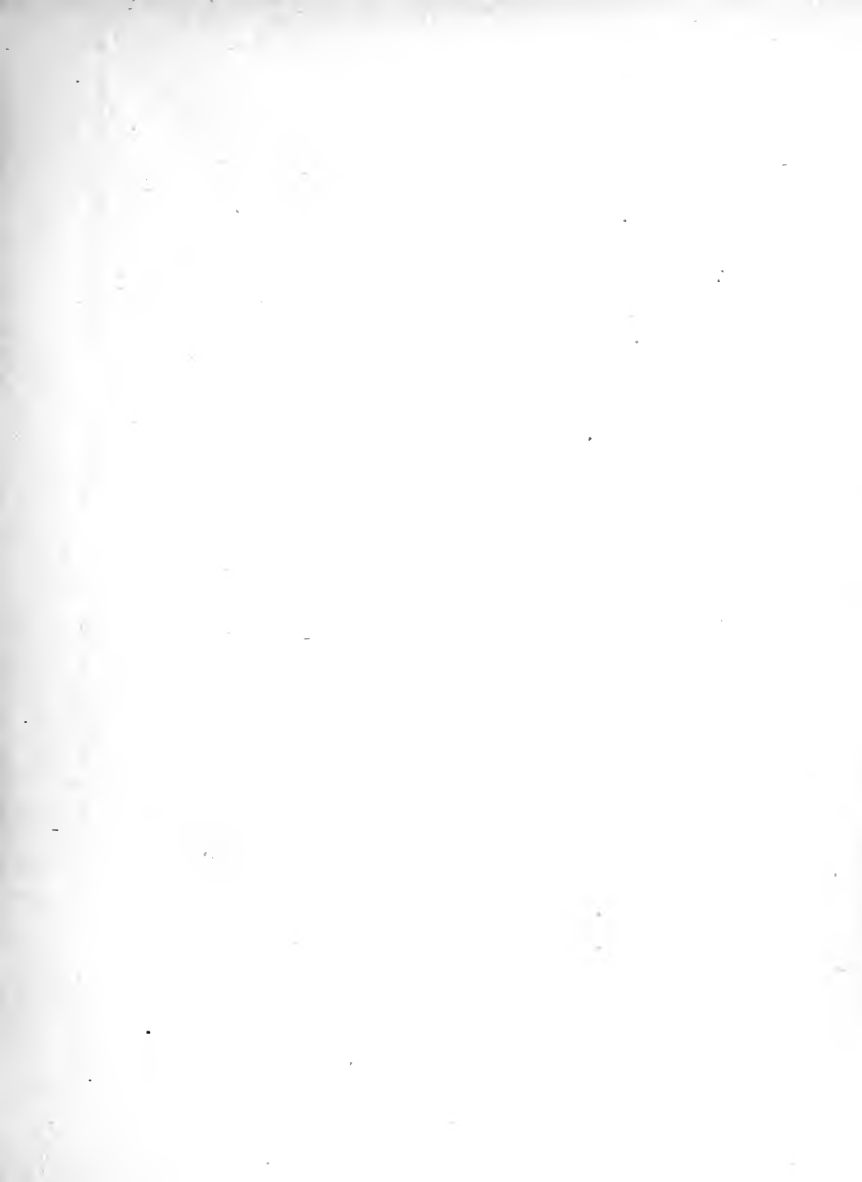
Linear Thrift.



Lancet Thrift.







THRIFT
2.

Pl. 14.



High-ribbed Thrift.

Vol. 5.



Woody Thrift.

4. WOODY THRIFT.

Plate 14. Fig. 2.

Character of the Species.

Statice Suffruticosa.

The Stem is woody; the Leaves are lanc'd, round pointed, and embrace it at their Base.

Fig. 2. a b.

THIS is a perennial, hard and woody Plant, native of the north of Europe and of Asia; and flowers in August. It grows to two feet or more in height; the lower part of the Stem is brown and hard; the upper Branches are green and tender; the Leaves are of a very fine green; the Flowers are of a pale, but delicate crimson.

IT has of late been a custom to join the Thrift, and the Sea Lavender * together in one Genus, but they were always, till of late, divided; and we retain the old distinction: the disposition of the Flowers demands it; and the character it gives, is plain and obvious.

A G G R E G A T E S.

O R D E R III.

Whose particular Cup is simple; or cut into a single series or range of Segments.

G E N U S I.

G L O B E W O R T.

G L O B U L A R I A.

Character of the Genus.

The Head is globular, and thick set with Flowers. The general Cup is equal to the Flowers in length. Each separate Flower is tubular at the Base, and cut into four Segments at the Rim; the upper one short, and turn'd back; the three others long, slender, and pointed.

Plate 15. o. a b c.

* Limonium.

F I. O V A L

1. OVAL LEAVED GLOBEWORT.

Plate 15. Fig. 1.

BLUE DAISY.

Character of the Species.

Globularia Vulgaris.

The Leaves from the Root are oval, and unarmed; those on the Stalk are lanc'd, but not sharp at the point.

Fig. 1. a b.

THIS is a perennial, native of France, and other parts of Europe. It is most frequent about Montpellier, but is no where so perfectly fine in the Flower as near the Edges of the upland Forests in Germany. It flowers in May and June. The Leaves are of a deep and dusky green; the Stalk is five inches high, thick covered with small Leaves of a deep colour also: the Flower is of a very beautiful blue.

2. PRICKLY GLOBEWORT.

Plate 15. Fig. 2.

Globularia Spinosa.

Character of the Species.

The Radical Leaves are broad, lanc'd and dented; and the point of every Tooth forms a Thorn: the Leaves on the Stalk are narrow and thorny.

Fig. 2. a b.

THIS is a perennial, native of the mountainous parts of Spain, and flowers in June. The Leaves are of a strong, but not pleasing green; there is a tinge of a dirty blue in it. The Stalk is not more than four inches high; and its Leaves are like those of the Root in colour, only a little paler: the Flower is of an exceeding beautiful blue; finer even than the former. It covers whole spots of many yards in some places, and makes a very beautiful appearance.

3. VARIOUS LEAV'D GLOBEWORT.

Plate 16. Fig. 1.

HERB TERRIBLE.

Character of the Species.

Globularia Alypum.

The Stalk is woody: some of the Leaves are simple lanc'd; others are divided into three Points at the End.

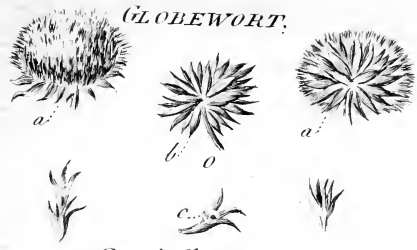
Fig. 1. a b c.

THIS is a woody Plant, native of the South of France, and common also in Spain and Italy. It grows to two feet high. The Bark

is

GLOBEWORT.

Pl. 15.



Generic Character.



Oval leaf'd
Globewort.



Prickly Globewort.





GLOBEWORT

2.

18



Various leaved Globewort.

Heart leaved Globewort. Vol. 5.

Wedge leaved Globewort.

is of a strong coppery brown in its native places, which is a fine contrast to the colour of the Leaves and Flowers; but is often lost in gardens. The Leaves are of a very fine green; the Flowers of a beautiful blue. A great many of them are in perfection at once, on the several Branches of the Shrub, in June: at which time, it makes a very beautiful appearance.

THIS is the Plant Authors call **HERB TERRIBLE** and **GUTWORT**, from a very harsh cathartic virtue in its Bark.

4. HEART LEAV'D GLOBEWORT.

Plate 16. Fig. 2.

Character of the Species.

Globularia Bifragaria.

The lower Leaves are heart-shaped; but they are lanced toward the upper parts of the Stalks.

Fig. 2. *ab.*

THIS is a perennial, a very beautiful Plant, common to Spain, and to some parts of Africa; it flowers in May. The Leaves are of a strong, but somewhat yellowish green: The Stalk grows to two feet in height; and is brown and hard toward the Base, but green and tender upwards. The Flowers are large, and of a celestial blue.

5. WEDGE LEAV'D GLOBEWORT.

Plate 16. Fig. 3.

Character of the Species.

Globularia cordifolia.

The Leaves are wedge-shaped; the End being broad, and divided into three parts, of which that in the middle is the leaf.

Fig. 3. *ab.*

THIS is a perennial, native of the Pyrenees, and of the Swiss mountains; a low and very singular Plant; but far from wanting beauty: it flowers in July. The Leaves are of a coarse green; the Runners or Offsets from the Roots, which lie upon the ground, are thick and brown. The Flower Stalk is slender and greenish, only a little brown at the base. The Flower is large, and of a delicate and fine azure.

6. NAKED GLOBEWORT.

Plate 17. Fig. 1.

Character of the Species.

Globularia Nudicaulis.

The Leaves are lanced ; the Flower Stalk is naked.

Fig. 1. a b.

THIS is a perennial, native of the hills in Italy and Germany, but no where so abundant, or so beautiful as at the foot of the Pyrenees, where it often covers whole acres ; as common and as hardy as our Daisy, which, but for the fulness and sky tint of its Flowers, it very much resembles. The Leaves are of a deep and strong green ; and rise in Clusters like those of our Daisy. The Stalks are numerous, six inches high, slender and delicate ; but of sufficient strength to bear the weight of the Flower, and of a strong green. The Flower is large, and of the perfect colour of the clear firmament. It flowers in June. The first kind has been called Blue Daisy, and Mountain Daisy ; but this much better deserves the name, because the Stalk is like that of our Daisy, naturally and usually naked ; but this is not a certainty, for in luxuriant soils, there will grow now and then a Leaf upon it.

THIS may shew the necessity of taking in more parts than one, into the specific character of a Plant : I remember to have observed the same thing in respect to some of the Hawkweeds ; and that when I was new in these studies, it perplexed me strangely.

7. MANY FLOWERED GLOBEWORT.

Plate 17. Fig. 2.

Character of the Species.

Globularia Orientalis.

The Leaves are oval revers'd ; several Heads are placed along the Stalk, growing close and without Footstalks.

Fig. 2. a b.

THIS is a perennial, native of Natolia, a very beautiful Plant, indeed the most elegant of this whole handsome family : it flowers in June. The Leaves are of a very fine grass green, and have a glossy surface. The Stalk is near a foot in height, sometimes tolerably thick set with Leaves, but in bad ground almost naked. The Flowers are perfectly globular, and are of a heavenly blue.

GLOBEWORT
3.

Pl. 17.



Naked
Globewort.



Many flower'd Globewort.





MASTER-WEED.

PL. 18.



Generic Character.



Five leav'd
Master-weed.



Seven leav'd
Master-weed.

G E N U S II.

M A S T E R W E E D.

A S T R A N T I A.

Character of the Genus.

The Head is convex, loose, and composed of many Flowers; the general Cup is longer than the Flowers. Each separate Flower is formed of five Petals, which are a little split, and turn back at the ends.

Plate 18. 2. a b c.

1. FIVE LEAV'D MASTERWEED.

Plate 18. Fig. 1.

Character of the Species.

Afrantia major.

The Leaves are formed each of five large Lobes, divided nearly to the Base; and each Lobe terminates in three Points.

Fig. 1. a b.

THIS is a perennial, native of the Apennines, and other mountains throughout the greatest part of Europe, but not of our country; a very singular, and not unhandsome Plant, of a foot or a little more in height, flowering in July. The Stalk is rib'd upright; and of a pale green. The Leaves are of a very strong and fine green. The Flowers are of a greenish white. There is a tinge of Crimfon always seen among them; this is from their Footstalks, which are of that colour. The general Cup is of a greenish white, and has, in some degree, the aspect of a Flower.

2. SEVEN LEAV'D MASTERWEED.

Plate 18. Fig. 2.

Character of the Species.

Afrantia minor.

The Leaves are formed each of seven Lobes, cut almost to the Base; and each Lobe is entire, only saw'd at the Edge, and ends singly.

Fig. 2. a b.

THIS is a perennial, native of the mountains of Swisserland, a Plant of little beauty, but singular in a high degree. The Stalk is single, and about

about seven inches high; the Leaves are of a bright green; the Flowers are white. It blows in August.

IN each of these Plants there are male and female Flowers in the same general Head. The Female are placed with their Cups on the top of the Rudiments of the Seeds; the Male on naked Footstalks. See *o. c. d.*

It has been customary to range the *Astrantia* among the Umbelliferous Plants; but the impropriety of this we have shewn*.

G E N U S III.
G R A S S - W E E D.
A G R O S T A N A.

Character of the Genus.

The Head is flat and loose; the Cup extends every way beyond the Flowers; and is of one piece, only dented lightly in five places at the Rim.

Plate 18. *o. a b c.*

Of this Genus we know only one Species.

I. YELLOW GRASS-WEED.

Plate 19.

Character of the Species.

The Leaves are nearly linear, but swell a little into breadth in the middle. The Cup has a little Point at the centre of each division.

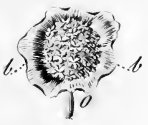
Plate 19. *a b.*

THIS is a perennial, native of Switzerland, and of some parts of Italy; a very pretty-looking Plant, flowering in July and August. The Stalk is pale, firm, and not much branched; it rises to a foot and a half high in good ground; though in some places not to more than six or eight inches. The Leaves are a foot long or more; they are of a strong, but somewhat yellowish green on the upper side, and paler un-

* See Page 4, and the succeeding.

GRASS-WEED.

Pl. 19.



Generic

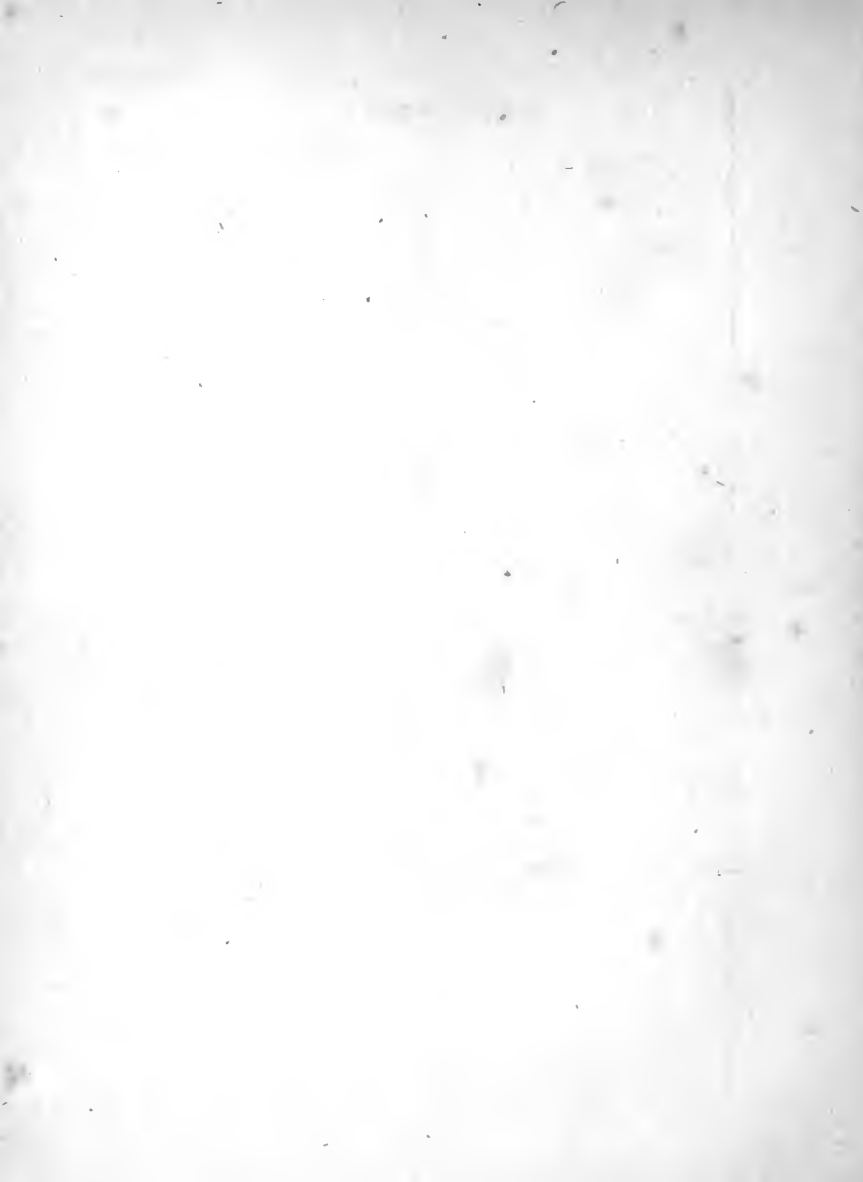


Character.



Yellow Grass-weed.

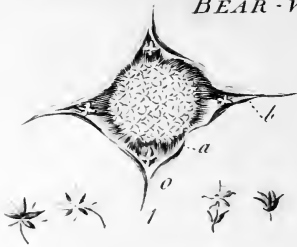






BEAR-WEED.

Pl. 20.



Generic Character.



Male Flowers.



Starry Bear-weed.

derneath ; and as they rise in vast clusters from the Root, and remain all the year, they, for a very considerable part of that time, have perfectly the look of Grass. The Flowers are small and yellow : their general Cup is by much the most conspicuous part ; and itself, in some degree, resembles a large whitish Flower ; in which, at any distance, the separate Flowers seem only as a cluster of yellow Filaments.

THOUGH the name be new, the Plant is not altogether so ; the accurate Haller, plainly and certainly knew it. He and Linnæus both, have thought that it is one of Bauhine and Ray's Beupleurums ; but if their accounts of that Plant † are fairly compared with this, it will, I think, be found otherwise.

G E N U S IV.
B E A R W E E D.
A R C T O P U S.

Character of the Genus.

The Head is flat, and composed of many Flowers without Footstalks. The general Cup is larger than the Head, formed of one piece, divided into four parts, and thorny at the Edge.

Plate 20. o. a b.

THIS is the character of the female or seed bearing Plants : there are barren or male Plants of the same Species, in which the Flowers have Footstalks ; and the general Cup is equal to them in length, and formed of five Leaves.

Plate 20. 2.

Of this Genus we know but one Species.

S T A R R Y B E A R W E E D.

Plate 20.

Character of the Species.

Arctopus Echinatus.

The Leaves are fringed with yellow Threads ; and armed on the surface with starry Thorns.

Plate 20. a b.

THIS is a perennial, native of the Cape of Good Hope ; a most singular Plant, ragged as it were, and fringed and covered with a kind

† Perfoliata Alpina Angustifolia media.

of native horribleness, not found in any other Plant. It lies upon the ground, unless that in some circumstances a part of its rough and thick black Root, thrusts itself up above the surface; and bears up the rest of the Plant like a Cabbage on its rooty Stem.

THE Leaves are of a deep and very strong green; their Edges only have a yellowish tinge; and the starry Thorns which grow upon their surface, are also yellow, bright, and shining. The Flowers are white, and the Cup which holds them is of a reddish green, and has a peculiar redness in the Thorns.

ALTHOUGH there are distinct male Plants of the Bearweed; there are also male Flowers in the same general Cup with the others on these Plants. The male Flowers occupy the Disk of the Cup; the female are only four; they stand at the verge at a distance from one another; and in the base, as it were, of the Spine that terminates each division.

WE owe the first knowledge of this singular Plant to Plukenet; but it is to Burman we are indebted for its characters.

THE Cup of the Dorstenia will appear less wonderful, when we have seen that of this Plant; which is nearly as much a Placenta.

G E N U S V.

T H O R N W E E D.

E C H I N O P H O R A.

Character of the Genus.

The Head is flat, and composed of several Flowers without Footstalks. The general Cup is longer than the Flowers; it is formed of one piece oblong, slender at the bottom, expanded at the Top, and slightly cut there into six irregular parts.

Plate 21. o. a b c.

1. F L E S H Y

THORN-WEED.

Pl. 21.



Generic Character.

Fleshy Thorn-weed.

Thin leaved Thorn-weed.



1. FLESHY THORNWEED.

Plate 21. Fig. 1.

Character of the Species.

PRICKLY SAMPIRE.
Echinophora Spinosa.

The Leaves are fleshy and pinnatifid; and the Segments are thorny at the Points.

THIS is a perennial, native of the sea coasts of most parts of Europe, our own not excepted; and flowers in June; a very specious, and exceedingly singular Plant. It grows to half a yard high, but usually leans in part upon the ground. The Stem is thick, firm, and almost woody, rib'd and jointed in a very striking manner. Its colour is usually brownish toward the base, but elsewhere of a blueish green. The Leaves are fleshy and firm; they are also of a blueish green, but their points are darker. The Flowers are white, but with a blush of crimson, and sometimes of yellow.

2. THIN LEAV'D THORNWEED.

Plate 21. Fig. 2.

Character of the Species.

Echinophora tenuifolia.

The Leaves are recompond, thin, and divided at the Ends into unarmed Segments.

Fig. 2. *a b.*

THIS is a perennial, native of Italy; principally upon the open sea coasts; a fresh looking Plant; flowering in July and August. It grows to two feet high. The Stalk is tender, and of a dusky green. The Leaves are somewhat thick, but not in the least like the former: Their colour is a yellowish green; but the nearer the sea the Plant grows, the more and more they become of a blueish tint. The Flowers are yellow: and the general Cup is always paler than the rest of the Plant.

G E N U S VI.

E G G W E E D.

G U N D E L I A.

Character of the Genus.

The Head is egg-shaped. The general Cup is leafy, and shorter than the Head, and is defended by a circlet of perfect Leaves beneath.

Plate 22. o. a b c.

Of this Genus we know only one Species.

T H O R N Y E G G W E E D.

Plate 22.

Character of the Species.

Gundelia Tournofertii.

The Leaves are pinnatifid, and their Edges thorny.

Fig. 22. a b.

THIS is a biennial, native of Syria and Armenia; a most singular and elegant Plant, flowering in June. It grows to a foot and a half high. The Stalk is thick, firm, and high rib'd, of a reddish brown, and not much branched. The Leaves are of a strong and fine green on the upper side, and paler underneath; and they are edged with tolerably firm Thorns of the colour of the Stalk. The Flowers are crimson; and the whole Head, though white at first, acquires by degrees that colour.

THIS Plant, in the order of nature, joins *Dipfacus* and *Eryngium*; and shews how little regard in the true arrangement of Plants, is to be paid to the distinctions of artificial Classes.

HERE it is necessary to place the Plants together under arbitrary schemes; and though we know that the nearer they stand to the just order of nature, the better, yet we cannot but often divide them. We have said in the Introduction to this our artificial method, that it is destined to the mere knowledge of Plants as we see them; and that in
the

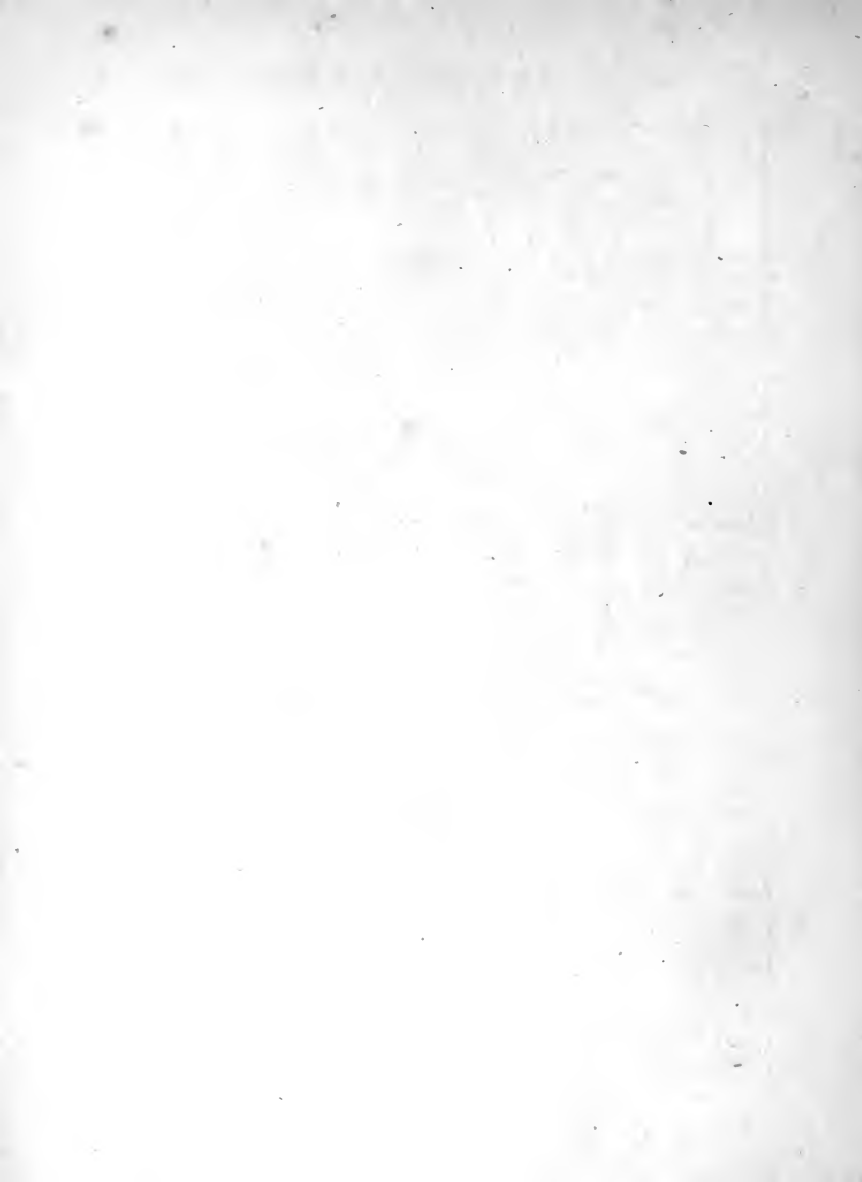
EGG-WEED.

Pl. 22.



Generic Character.

Thorny Egg-weed.



the pursuit of it, we shall have no mercy on any Class, Order, † or Genus that would stop our course. The reader has here an instance: while we acknowledge that this Plant in the method of nature, has its just place between Teasell and Eryngium; we give it under an Order different from either, and near Plants it does not belong to; because the separate Cup of its Flower is of a different construction; and it is by that the student is to know how and where to find the Plant: we shall shew him afterwards, according to this hint, where to place it.

G E N U S VII.

S H E E P S R A M P I O N.

J A S I O N E.

Character of the Genus.

The Head is globular; the general Cup is formed of two ranges of Scales; the one erect, the other dependent, and properly a fringe.

Of this Genus we know but one Species.

H A I R Y S H E E P S R A M P I O N.

Plate 23. Fig. 1.

SHEEPS RAMPION.

Character of the Species.

Jasione montana.

The Leaves are linear, and slightly ferrated.

Plate 23. a.

THIS is an annual, native of dry hilly pastures, and common to England, and most other parts of Europe; a very handsome Plant. It grows to a foot or a little more in height; the Stalk is slender and weak; pale, and a little hairy. The Leaves are of a pale and brownish, or greyish green. The Flowers are of a celestial blue, large and very beautiful. It flowers in June. It is common about the farther edge of Hampstead Heath, near the Spaniards; and in many other places in

† Vol. II. Page 44.

duffy closes, and by the sides of roads: but it is in gardens only that it appears in its full and proper lustre; the cluster of Flowers detains the dust, and we see little of their elegance, unless where they are kept in cleanly places.

THIS Plant is altogether singular. It not only constitutes a Genus of itself, of which there is no other Species; but is properly of no Class, natural or artificial. It is one of those which writers usually call Anomalous; but in the higher views of Botany, it is one of the Intermediate or Connecting Plants. It has partly the character of the Tubulate or naked flowered Class, for its Chives cohere; and partly of this of Aggregates, for each Flower is perfect, and has its proper Cup. Therefore in the order of nature, it leads from one of these Classes to the other; fills up an imagined gap between Class and Class in artificial methods, and joins the two, by destroying the distinction. *The Union of its Chives*, obliged us to give a figure of it before at the end of the second Class †, together with some other singular and connecting Plants, for it claimed thereby that character; here we repeat it more at large, as in its more proper place, according to our plan ‡, for the union of its Chives is slight and imperfect, but its separate Cup is perfect and entire.

O R D E R IV.

Whose particular Cup is double; or has two Ranges of Segments.

G E N U S I.

S C A B I O U S.

S C A B I O S A.

Character of the Genus.

The Head is convex, and the general Cup is composed of several Ranges of leafy Scales.

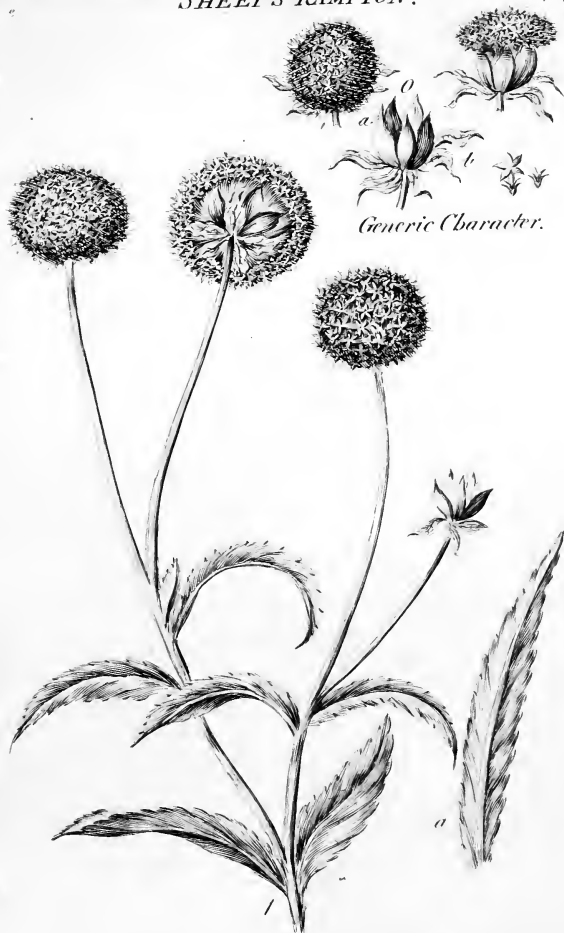
Plate 24. o. ab.

† Vol. III. Page 145.

‡ Vol. II. Page 43.

SHEEPS-RAMPION.

Pl. 23.



Generic Character.

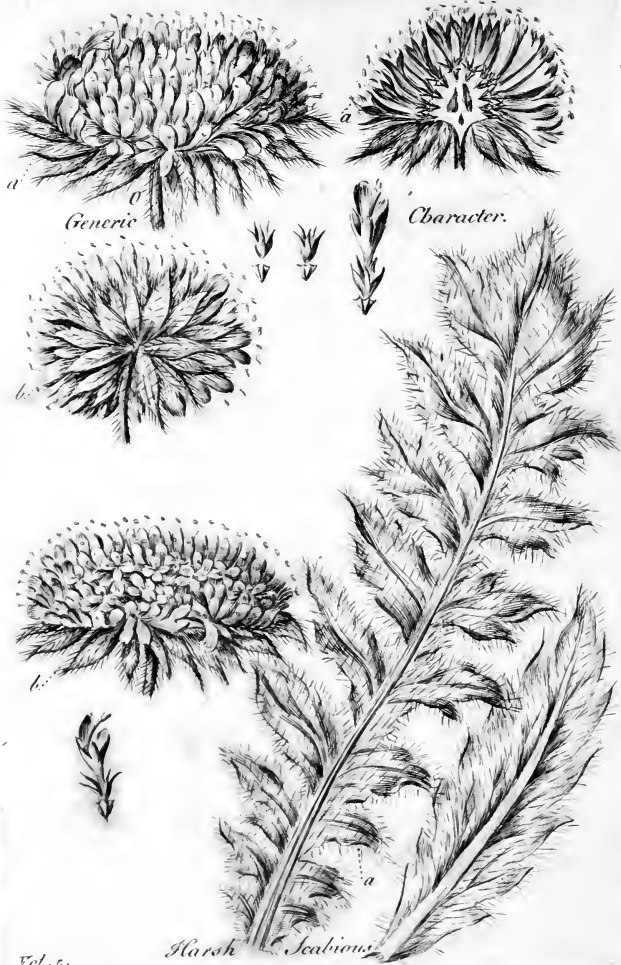
Hairy Sheep's-Rampion.





SCABIOUS.

Pl. 24.



Generic

Character.

Harsh Scabious

Vol. 5.

I. HARSH SCABIOUS.

Plate 24. Fig. 1.

COMMON SCABIOUS.

Character of the Species.

Scabiosa Arvensis.

The Plant is covered with long firm Hairs which feel harsh; the Flowers spread, and form a broad open Verge.

Fig. 1. *ab.*

THIS is a biennial, native of our Corn-Fields, and flowers in July; a stately handsome Plant, that would be thought an ornament in gardens, were it not found in fields. It grows to two feet and a half in height. The Stalk is pale and branched. The Leaves are of a light, but pleasing green; and the Flowers are large, and of a very delicate pale crimson.

THIS Plant stands at the Head of a very large Genus, of which I am afraid all are not genuine Species which are honoured with that name. It is evident, that but the last year, I had at Bayswater, a Plant of the mongrel or mixt kind, between the *Eryngium Planum*, and this common Scabious; and I suspect extremely, that the Syrian Scabious has the *Pastoria*, or little Teafell, for one of its parents: perhaps there are some others that should be marked with the same character, which experience and strict observation will shew.

THIS common Scabious, is a Plant of very considerable virtue, but at this time much neglected. Chymical medicines have taken, in too great a degree, the place of often more effectual, and always more innocent preparations from Plants. What I personally know of the virtues of this, is worthy to be known by all. I have cured asthas, with a syrup of Scabious made with honey: and terribly ulcerated legs, with a pulice of the Leaves of Scabious, boiled to softness.

2. LANC'D LEAV'D SCABIOUS.

Plate 25. Fig. 1.

DEVILSEIT SCABIOUS.

Character of the Species.

Scabiosa Succisa.

The Leaves are broad, simple, lanc'd, and serrated at the edges.

Fig. 1. *ab.*

THIS is a perennial, native of our dry pastures; and flowers in July. It grows to two feet or more in height; but the Stalk naturally leans,
in

in part, toward the ground. The branches are few and ascendant; the Leaves are of a very deep and strong green; as is also the Stalk, except that on the sunny side 'tis often purplish. The Flowers are of a very deep and beautiful blue.

THIS Plant is said to have the virtues of the preceding in medicine; and fanciful writers have given it the name of Devil's-bit, because, as they or their grandmothers fancied, the Devil bit off its Roots, envying their virtues to mankind. The Plant has an abrupt Root, as have some of the Hawkweeds; one of which has also had the same English and Latin name for the same reason; and many other Plants. With respect to its virtues, I think it is inferior to the former; but some of the northern nations, have found that it is excellent in dying; and it were well if we, who with all our boasted improvements in the arts are very deficient in that, would cultivate the thought. Perhaps this innocent Weed would yield a green more elegant and lasting, than that we sought to make with Arsenic after the Saxons.

3. DROOPING SCABIOUS.

Plate 25. Fig. 2.

Character of the Species.

Scabiosa Alpina.

The Flowers droop: the Leaves are deeply pinnatifid; and the Segments ferrated.

Fig. 2. *a b.*

THIS is a perennial, native of the Swiss mountains, and of many Parts of Italy: a Plant of two feet and a half high; flowering in June. The Leaves are of a very strong, but somewhat blueish green. The Stalk is of a deep green; soft and tender. The Flowers are of a very deep blue. The Stalk, just under the Flowers, swells a little and turns, hanging the Flower a little drooping.

4. HARP'D SCABIOUS.

Plate 26. Fig. 1.

Character of the Species.

Scabiosa Transylvanica.

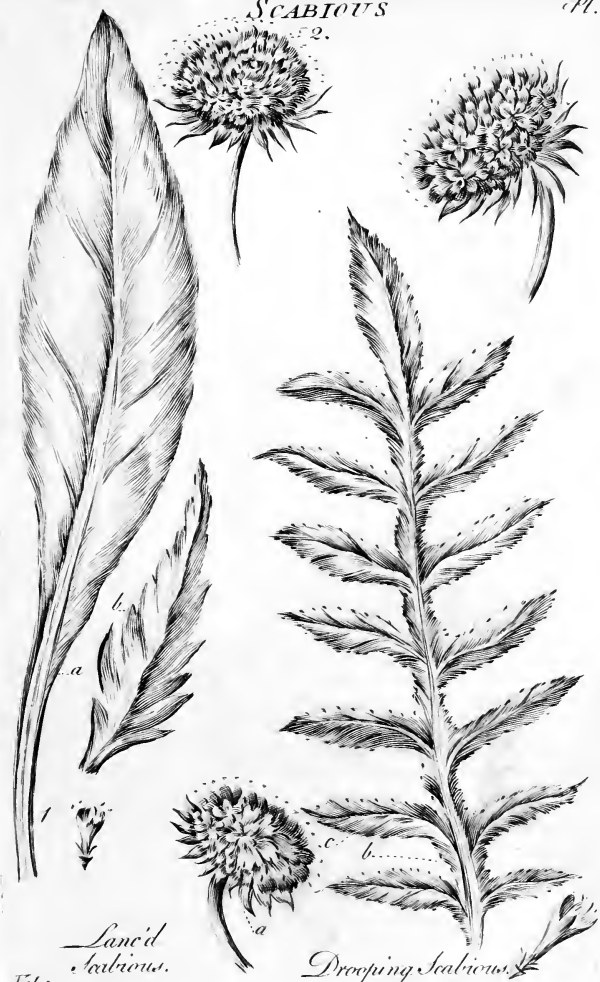
The lower Leaves are harp'd; but the upper ones simply pinnatifid: the separate Flowers are short, and stand low.

Fig. 1. *a b c.*

THIS

SCABIOUS

Pl. 25.



Lance'd Scabious.

Drooping Scabious.

Vol. 5.





SCABIOUS

3.

Pl. 26.



Vol. 5.

Sharp's Scabious.

Snowy Scabious.

THIS is an annual, native of Transylvania; a tall and very handsome Plant, flowering through all the middle part of Summer; and very worthy a place in gardens. The Stalk is firm, erect, thick jointed, and above a yard high. The Leaves are of a faint, but delicate green; and are a little hairy. The Flowers are of a very fine rose colour. They stand much more regularly on the top of the Plant, than in many of the other kinds; and this adds a great deal to their beauty.

5. SNOWY SCABIOUS.

Plate 26. Fig. 2.

Character of the Species.

Scabiosa Leucantha.

The Leaves are irregularly pinnatifid: The Flowers are globular and compact.

Fig. 2. a b.

THIS is a perennial, native of the South of France; a Plant of very singular aspect, flowering in July and August. The Stalk is brown, and woody at the base; the upper part is pale and tender; and its Branches fall wildly, not with that regularity we see in many of the Scabious's. The Leaves are of a whitish green; and have a glossy surface. The Flowers are snow white.

IT is singular that this Plant, evidently the same species, is found at the Cape of Good Hope, where its Stalk is much more woody, and its Leaves lose much of their division. These variations, though they seem great, yet are reduced to nothing, when we examine into their causes. The Cape Plants have often woody Stems, because the force of winter does not destroy them; and even with us, a high or low ground, give more or less divisions to the Leaves. The first is an article of consequence in the history of Plants, because unless understood, many herbaceous Plants will be confounded with Shrubs; but the cause is familiarized to us by good observation here. Last winter being a very mild one, many of the Musk Scabiouses lived through it; and have now woody Stems.

6. FORKED

6. FORKED SCABIOUS.

Plate 27. Fig. 1.

Character of the Species.

Scabiosa Syriaca.

The Stalk splits in a forked manner; the Leaves are lanc'd, and deeply serrated, especially toward the base.

Fig. 1. *ab.*

THIS is an annual, native of Syria, and many other warm parts of the globe; but is no where so plentiful as about Aleppo; though this is not always, but in certain years, for sometimes in the same places, which were before in a manner covered with it, there is scarce a Plant to be seen: the cause of which will be considered. The Plant is a yard and a half high, very beautiful, and lasts many months in flower. The Stalk is ridged, erect and robust, of a pale green, and always rises unbranched for some height above the ground. The proper summit of it is terminated by a Flower, a little below which, rise two Branches in a forked manner; and each of these terminating as the Stem, give the same forked aspect to the whole upper part of the Plant, with a Flower on a short Footstalk in the division.

THE Leaves are of a pale, and very delicate green; the Flowers are of a perfectly celestial blue: though they will vary from this, and sometimes be white.

THE aspect and habit of this Plant, and the extreme uncertainty of finding it in the same place; together with the free growth of the Seeds with us at some times, and their perfect failing at others, though seeming very good and sound, give me a suspicion that the Plant is not a genuine species, but is produced between the Shepherd's Rod, and some one of the Scabious's. The habit more resembles the Shepherd's Rod than the Scabious, but is truly of a kind between them. The Leaves have much of the Shepherd's Rod form; and their deep division toward the base, seems an attempt toward the distinct appendages of that Plant; neither does the form of the general Flower deny this alliance. There is in this case less wonder that the Seeds fail often, than that they sometimes grow.

SCABIOUS

Pl. 27.



Fork'd Scabious.





SCABIOUS

Pl. 28.



1 Hollow'd Scabious.

2 Spreading Scabious.

WE shall have an opportunity of enquiring farther into the doctrine of Mulish Plants, at the end of this Genus.

7. HOLLOW'D SCABIOUS.

Plate 28. Fig. 1.

Character of the Species.

Scabiosa Tartarica.

The Leaves are lanc'd and deeply sawed; the lower ones are lightly pinnatifid; and their Segments turn in, and make the Leaf hollow.

Fig. 1. *ab.*

THIS is a biennial, native of Tartary, and flowers in July; a very tall, stately, and handsome Plant. The Stalk is five feet high, thick, and very upright and robust; the Branches are also coarse and strong, and all covered with that sort of hairyness, which gives the harshness our Scabious has to the touch. The Leaves are rugged, and of a coarse green. The Flowers are very large, and of a fine light crimson when first blown; but they grow paler with standing, and get a very faint look as they fade.

8. SPREADING SCABIOUS.

Plate 28. Fig. 2.

Character of the Species.

Scabiosa integrifolia.

The Stalk is smooth, and spreads at the top with wide Branches; the Leaves are lanc'd, dented at the edge, and hairy.

Fig. 2. *ab.*

THIS is an annual, native of the South of France; and flowers in June. The Stalk is firm, of a dusky green, and two feet high. It rises single, and sends out few Branches till near the top, where it divides and spreads into a wide head; unlike in this respect to any other of the Scabiouses; the Flowers are small, and the Heads globular. Their colour is a singular crimson, having some faint dash of a tint approaching to blue, that plays in an uncertain manner upon the Buds; but is not seen in the open Flowers.

THE divisions of the Flower, in this and the preceding species, are less irregular than in many of the others. The Scabious Genus is so large, that I have wished to form a distinction upon this foundation; but near examination shews the difference is only in the degree of irregularity, for all are more or less irregular; and therefore I have found it impracticable.

9. FINE LEAV'D SCABIOUS.

Plate 29. Fig. 1.

Character of the Species.

Scabiosa Columbaria.

The first Leaves are simple, oval, and bluntly dented along the Edges. The others are deeply pinnatifid and serrated; and those on the upper part of the Stalk, most fine and simple in their divisions.

Fig. 1. *ab*.

THIS is a biennial, native of our hilly pastures, a very beautiful, though wild Plant, flowering in June, July, and August. It grows to near a yard in height; the Stalk is delicate, but firm; of a pale green, and not much branched; the Leaves are of a pale green also; and from the fineness and regularity of their divisions, have a beautiful aspect. The Flowers are of a fine crimson, with a dash of a pearly blue. They vary exceedingly in size, form and colour, according to the places where the Plant grows. It loves a light soil; but light soils are usually dry; and in these the heads are small and globular, and the Flowers open very imperfectly; the Plant requires to its perfect good condition, some moisture in the light and loose ground, wherein it delights to grow. In this the Flowers obtain their full size, and spread into a breadth that is surprising; here also they have their fine crimson colour. I found the Plant in this fine state near Hornsey Wood; and giving it the same soil, it blows in the same perfection here at Bayswater.

10. PURPLE

SCABIOUS.

Pl. 29.

6



Fine leaved Scabious.



Vol. 5.

Purple Scabious.





SCABIOUS

Pl. 30.

7.



Silvery Scabious.

Woody Scabious.

10. PURPLE SCABIOUS.

Plate 29. Fig. 2.

MUSK SCABIOUS.

Character of the Species.

Scabiosa Atropurpurea.

The lower Leaves are pinnatifid with a broad harp'd end; the others are simply pinnatifid, with long slender Segments.

Fig. 2. *ab.*

THIS is an annual, native of the East-Indies, a Plant of two feet and a half high, covered with Flowers in July, whose fine deep colour, and perfumed scent, have long made it a favourite in our gardens. Though an annual with us, it is a perennial, woody Plant in its native soil, as are many others; and it will live through mild winters, and become woody also sometimes with us. The Stalks are brown toward the base, but of a good green upwards. The Leaves are of a bright green. The Flowers are purple, dotted as it were with their own white styles.

11. SILVERY SCABIOUS.

Plate 30. Fig. 1.

Scabiosa Argentea.

Character of the Species.

The lower Leaves are pinnatifid; the upper ones are only dented irregularly, and that most near the point.

Fig. 1. *ab.*

THIS is a perennial, native of the greek islands, a very beautiful Plant, flowering all the summer. It grows to near a yard in height, and branches wildly and irregularly; the Stalk is glossy, firm, and white. I should say Vaillant had hit upon a lucky thought in likening it to ivory, but that, with me at least, it is usually stain'd a little with crimson. The Leaves are of a delicate silvery white; the Flowers are of a very pale crimson. Sometimes they are small and very red, at other times they spread out into a great breadth, and get a great deal of a blueish tinge; this latter state is commonly the effect of a too close green-house culture. The Plant will stand very well in the open air, and it is there it gets the true middle size, and strong glowing colour of its Flowers, in which case it is so very much superior to the sickly, spread out, blueish aspect of the green-house, and the starved condition

that it sometimes has in a tough foil abroad, that it is scarce like the same Plant.

12. WOODY SCABIOUS.

Plate 30. Fig. 2.

Character of the Species.

Scabiosa Africana.

The Stalk is woody; and the Leaves have a few deep and irregular Segments.

Fig. 2. *a b.*

THIS is a perennial, native of Africa, a wild and irregular growing Plant, but very beautiful, flowering in July and August. The Stem is wooly, and two feet high; the lower part is covered with a brown bark; the young Shoots are tender, and of a whitish-green. The Leaves are of a light green; the Flowers are numerous, large, and of a delicate pale crimson. If this Plant be managed with care, by cutting off the faded Flowers, and allowing it water regularly, it will be covered with bloom all summer. The Seeds may be spar'd, for they seldom ripen here; and the Plant is so easily propagated by cuttings that we need not save the Flowers for that uncertain purpose.

13. YELLOW SCABIOUS.

Plate 31. Fig. 1.

Character of the Species.

Scabiosa Ochroleuca.

The Leaves are doubly pinnatifid; and their Segments sharp pointed.

Fig. 1. *a b.*

THIS is a perennial, native of Germany, and other parts of Europe, a Plant singular in the division of its Leaf, and colour of its Flower, but yet a true and genuine Scabious, flowering in July and August. The Stalk is thick, firm, branched, and two feet high. The Leaves are sharply and elegantly divided; their colour is a strong green; and they are firm to the touch. The Flowers are yellow; they are very numerous on the Plant, and open in a long succession, but their colour is by no means pleasing; it is a dusky, though not strong yellow; and soon becomes paler and fainter as the Flowers continue open.

14. VARIOUS

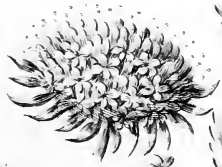
SCABIOUS
8.

Pl. 31.



a.

1
Yellow
Scabious.



2x

Vol. 5.

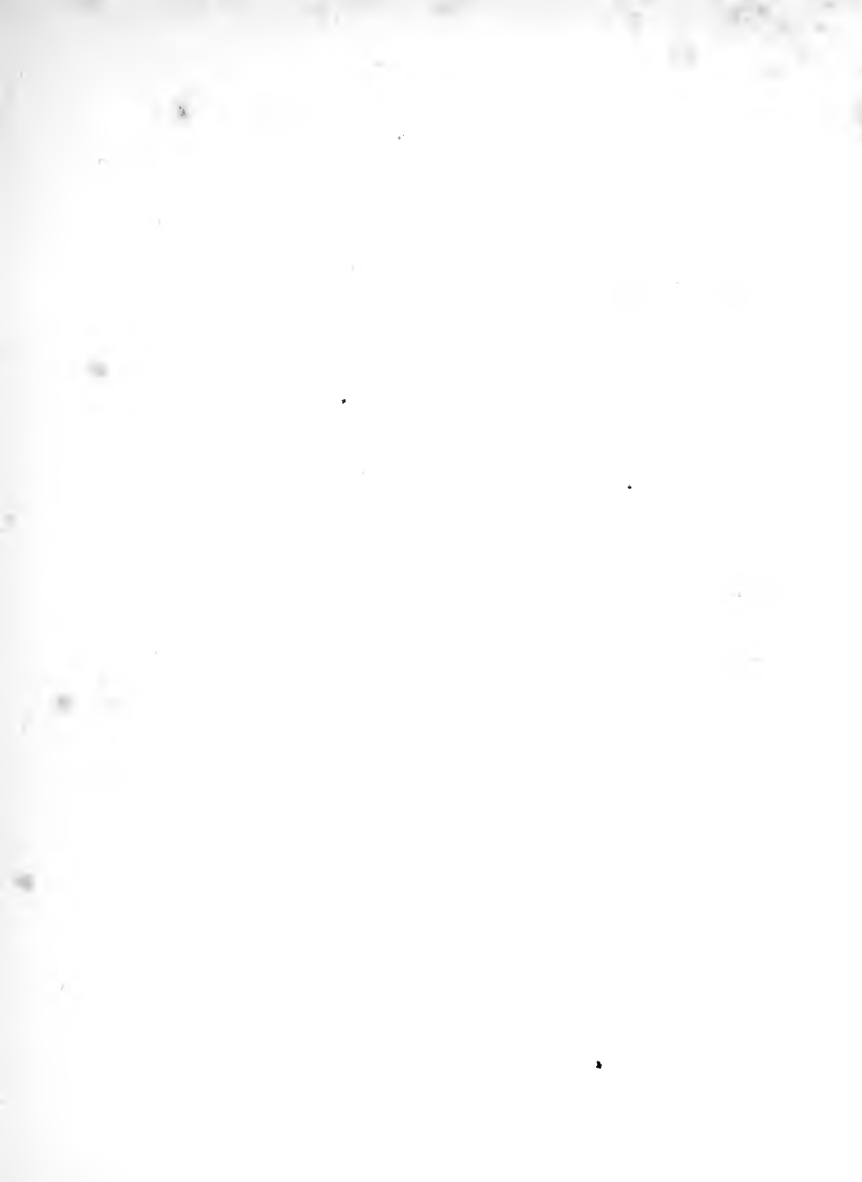


b. a.
2. Various leaf'd
Scabious.



Proliferous Variety.





SCABIOUS
9

1732



*Eyelash'd
Scabious.*

*Grassy
Scabious.*

14. VARIOUS LEAV'D SCABIOUS.

Plate 31. Fig. 2.

Character of the Species.

Scabiosa maritima.

The upper Leaves are linear, narrow, and undivided; the others are very deeply pinnatifid, with indented Segments.

Fig. 2. *ab.*

THIS is a biennial, native of the sea coasts of Spain and Portugal, a tall and handsome Plant, flowering in June. The Stalk is thick but weak; of a strong green, and not much branched. The Leaves are of a fresh and fine green; the Flowers are crimson; they are large and numerous, and last longer upon the Plant than in most of the other Scabious kinds; and for that reason render it desirable in gardens.

IN dry seasons, and very dry soils, the Flowers of this Plant will be perfectly white; and they are then very beautiful; perhaps indeed more so than when of their native colour. Several of the other species will have their Flowers pale, when they are ill nourished, but unless the white be perfect and lively, they never look well in that condition.

I HAD last year an elegant variety of this Plant with the Stalk Proliferous; several Footstalks of new Flowers growing from the back of the Cup of the first which rested sessile on the Stalk. To one unaccustomed to the variations of the Scabious kinds, it would have seem'd a new Plant. See Plate 30. Fig. 3.

15. EYELASH'D SCABIOUS.

Plate 32. Fig. 1.

Character of the Species.

Scabiosa Ucrainica.

The lower Leaves are pinnatifid; the upper ones are perfectly simple and linear; and are eyelash'd near the base.

Fig. 1. *ab.*

THIS is a biennial, native of Tartary and China, a tall, singular, and not elegant Plant, flowering in August. The Stalk is slender, upright, not much branched, and of a full and fresh green. It is weak but

but tough, so that it plays about in the wind without breaking, and offers its numerous Flowers to view in various ways, and in a very pleasing manner. The Leaves are of a fresh and pleasant green; the hairs which form the Eyelash at the base of the upper ones, are harsh and firm; and give that part of the Plant the same harshness to the touch that we feel in the common Scabious of our fields. The Flowers are of a light crimson; the Heads are not so large as in some of our common Scabiouses; but the colour and number of the Flowers, make good amends for that deficiency.

16. GRASSY SCABIOUS.

Plate 32. Fig. 2.

Character of the Species.

Scabiosa Graminifolia.

All the Leaves are linear; but a little swelling in the middle.

Fig. 2. a.

THIS is a biennial, native of Germany, a low Plant, singular enough, but of no great beauty, flowering early in July. The Stalk is weak, tender and bowing, for the Flowers are large; its colour is brown at the base, elsewhere green. The Leaves are of a fresh and fine green; and have so much of a grassy look, that, unless when the Plant is in flower, or bud rather, for then the colour is much more glowing; it is not readily distinguished from the grass, among which it usually grows. The Flowers are of a bright and fine crimson. This Plant, when entire, would look very like a branch of the former, only that the Leaves have nothing of that eyelashed hairyness at their base.

17. RUGGED SCABIOUS.

Plate 33.

Character of the Species.

Scabiosa lanata.

The Leaves are oval, and covered with a rough woolly matter.

Plate 33. a b.

THIS is a perennial, native of the Cape of Good Hope, unlike in appearance to most of the Cape Plants, but of a rough and robust aspect, which to the curious eye, surpasses beauty. To describe it, will be to

SCABIOUS
10.

Pl. 33.



Rugged
Scabious.



say, that it has neither form nor colour, delicacy nor simplicity; but to look upon it, is to be astonished, and whoever sees it, knows there is something in the aspect of a Plant superior to beauty.

IT rises to little more than a foot in height; and though its Stalk is extremely thick and strong, it always leans, and often lies upon the ground entirely. The Leaves are thick and fleshy, of a blackish green on the upper side, and white on the under; but on both covered thick with a long curly, heavy, cottony matter, scattered wildly, and, as it were, irregularly over them. The two sides of the Leaf are a fine contrast to one another; and they are usually seen more or less in every Leaf together, for the sides toward the base are naturally turned in, and drawn up; and most in the youngest.

THE Stalk is tough and spongy, and is covered thicker than the Leaves with this white frizzled matter: we know the singular harshness there is upon the Stalks and Leaves of the Scabious of our corn fields: but this is soft and woolly, it gives way to pressure, and has a wonderful yielding to the touch, but rises again presently to its usual form. The Branches are few; the filmy Leaves upon them are white entirely. The Flowers are very large and green, but with a slight tinge of yellowish. Their Cups have the same woolly whiteness with the Leaves; and this gives a pleasing contrast to the colour of the Flowers. They blow in August.

IT does not seem that any of the writers on Botany have known this Plant, except Burman; and with him it appears in a degree of eminence and singularity, beyond what I have seen: the Flowers on his Plant were prolific; on mine they are simple; but 'tis a luxuriance to which the Scabious's are not absolutely strangers, as we shall see in the succeeding species, even in their wild state: and culture gives this condition sometimes in a high degree, even to the Musk Scabious.

18. PROLIFEROUS SCABIOUS.

Plate 34.

Character of the Species.

Scabiosa prolifera.

The Leaves are broad lanc'd; the Stalk is proliforous.

Plate 34. a b.

THIS is a biennial, native of China and India, a low, but exceedingly singular Plant, flowering in July. The Stalk is firm, hard, and brown, almost woody at the base. It does not exceed six or seven inches in height, and a part even of that lies upon the ground; the bottom is brown with some tinge of red; the rest greenish with white hairs; these are rough and rugged, and give it the same harshness to the touch, that we find in the common Scabious of our corn fields.

THE Leaves are of a pale, and but unpleasing green. The Flowers are of a very pale yellow: the outer ranges of these in every Head are so much larger, and more divided than the rest, that in some views, one would suppose the whole Head only a single Flower.

THIS is not constant or certain in this Plant, at least not in degree; and it obtains more or less in many other of the Scabious kinds. When this grows in a dry soil, and fully exposed to the sun, the outer Flowers do not exceed the inner ones, more than in the common Scabious; but they are always much more irregularly divided; on the other hand, Plants from the same parcel of Seeds, raised in a moist place, under some degree of shade, have spread out here their outer Flowers to a degree much exceeding what is shewn in this figure. The same situation and accidents will wonderfully alter the Flowers, especially the outer ones of many of the common kinds; and I have seen such difference between the green-house Plants, and those of the open air in the same species, as would make some think the objects too vague for description, or for figure; moderation in our accounts and representations is the rule of being right; and there always remain parts enough that are unchangeable to ascertain the character.

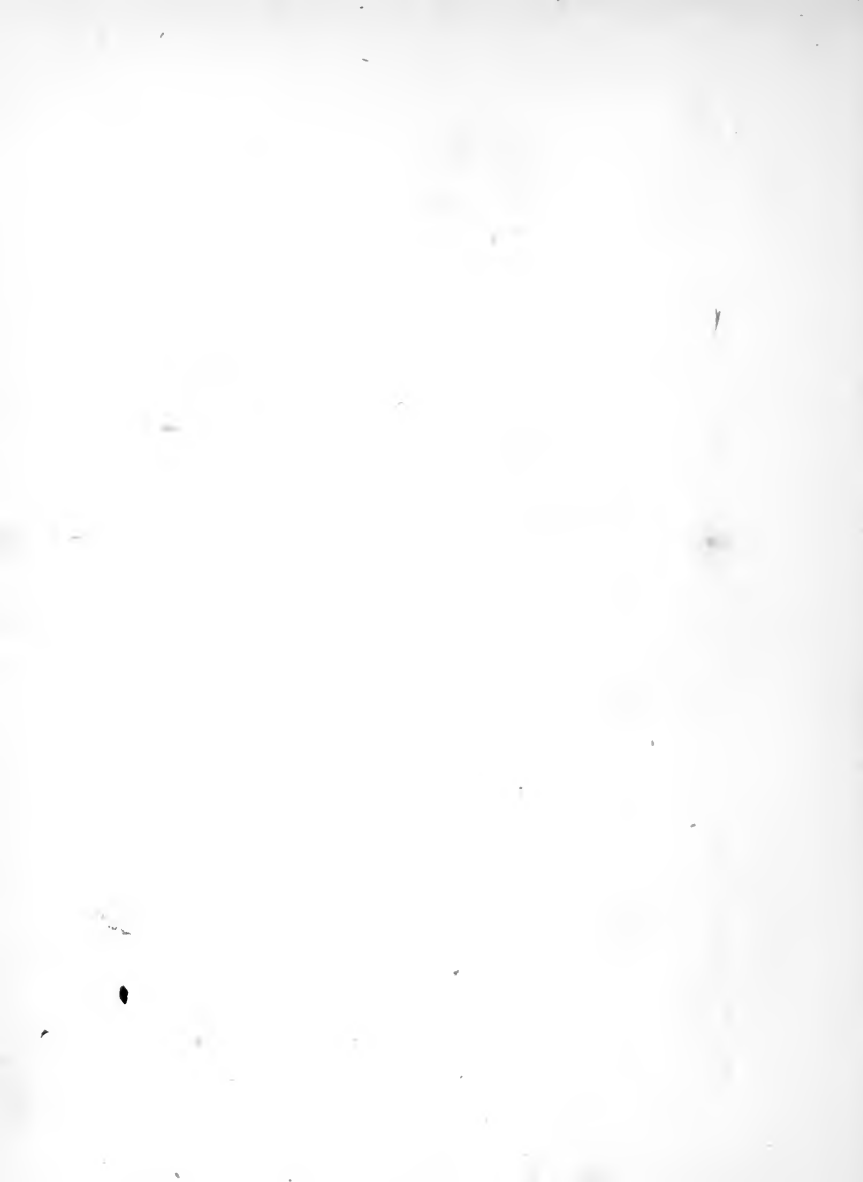
SCABIOUS
II.

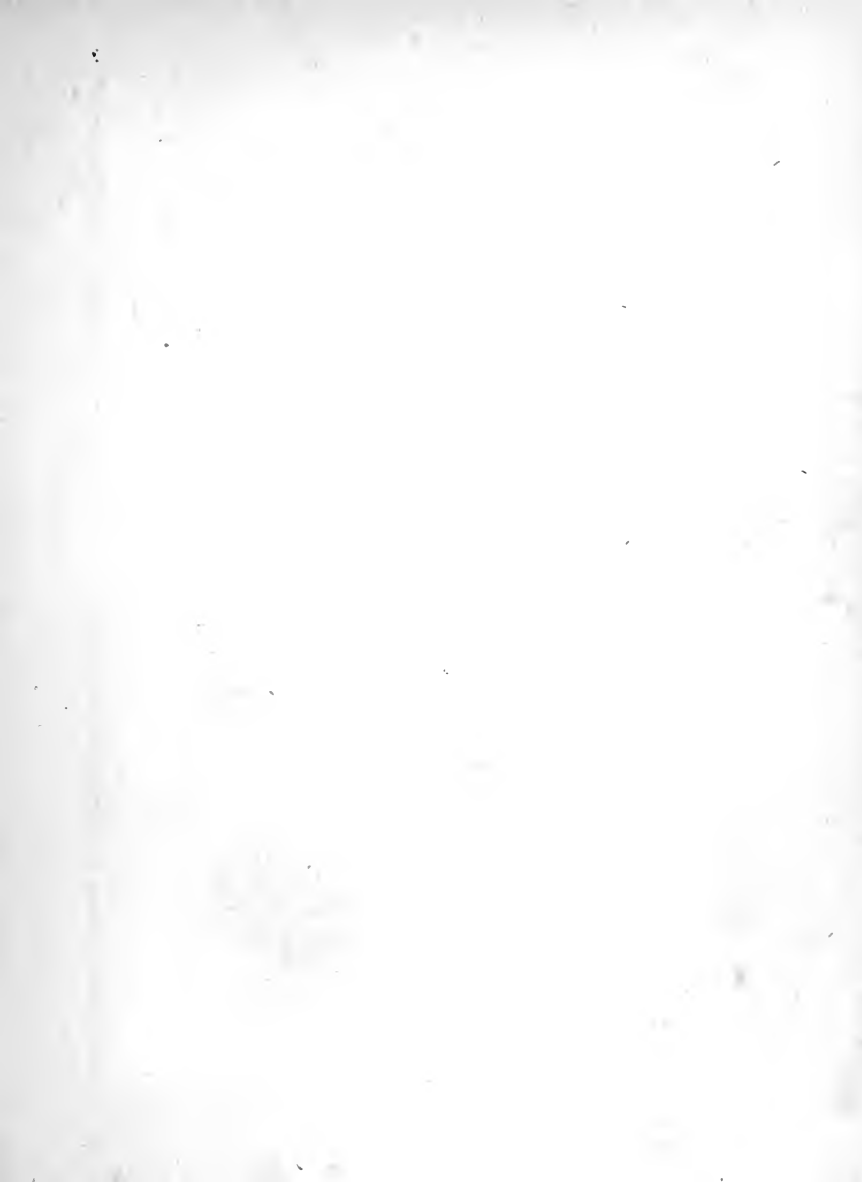
Pl. 34.



*Proliferous
Scabious.*







c

SCABIOUS.
12.

Pl. 35.



Entire leav'd
Starry Scabious.

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19. ENTIRE LEAV'D STARRY SCABIOUS.

Plate 35.

Character of the Species.

Scabiosa cretica.

The Leaves are lanc'd and undivided; the Seeds have starry crowns.

Fig. 1. *a b.*

THIS is a perennial, native of Crete; and other of the Greek Islands: a Plant of very agreeable aspect, that bears the free air with us perfectly well; and flowers as gaily as if on its native land in July and August.

It grows to two feet and a half high; the Stem is woody at the bottom, and there of a brownish hue; higher up it is tender, and of a pale grey. The Leaves are of a greyish or whitish green; they are naturally quite entire, and even at the edge; but sometimes where the Plant has very luxuriant nourishment, they are wavy, and in a manner indented. The Flowers are of a pale and delicate crimson: they vary much in size, according to the season, or to the degree of the culture they receive, as is the case in many of the other Scabious's. And in general, when they are largest they are palest; and when smallest, of the strongest colour.

THE Flowers are not the only production of this Plant, for which it is, and deserves to be esteemed in gardens; they are handsome enough, and the succession of them is very lasting; but the Heads of Seeds that follow, have a striking aspect; and to those who esteem singularity as beauty, they cannot but be very pleasing; they are oval, and crown'd with a dry shining membranaceous cover, with five starry threads.

THIS kind of ornament about the Seed, has led many to make a division among the species of this Genus, and to range such as have it alone, under the distinct name *Asterocephali*; but nature denies the exact limits between these and the common kinds: the ascent toward this peculiar structure, is by so light degrees, that none can say where it is perfect; therefore the distinction is omitted, not only here, but by the most correct authors beside: for where the point of difference is not deter-

minate, we confound instead of distinguishing when names are multiplied, and differences established.

20. DECUMBENT STARRY SCABIOUS.

Plate 36. Fig. 1.

Character of the Species.

Scabiosa Pteroccephala.

The Stalk leans upon the ground; and is woody at the base. The Heads have extremely short and naked Footstalks.

Fig. 1. *a b.*

THIS is a perennial, native of the Levant Islands, a low and very singular Plant, flowering from July to September. The Stalk is hard, rugged and woody near the base, but elsewhere tender and green; it grows only to six or eight inches in length; and for the most of that, it lies upon the ground. The Leaves are naturally of a fresh and fine green; but they are rendered grey by a multitude of long white hairs. The Flowers are of a bright, though not very strong crimson, and are large, though the Plant is low: the Heads of Seeds are very beautiful; they are dry, shining, brown and downy. The hairs which give that aspect are pale, and keep their place and form very regularly, though they have nothing of that firmness we find often among the hairs of the Scabious kinds.

21. FEATHERY SCABIOUS.

Plate 36. Fig. 2.

Character of the Species.

Scabiosa papposa.

The Cups of the separate Flowers are downy.

Fig. 2. *a b.*

THIS is a biennial, native of Crete, and other of the Greek Islands; a handsome Plant of two feet high, flowering in August. The Stalk is tender to the bottom, upright, green, branched, and often very spreading. The Leaves are of a pale and greyish green: the Flowers are of a pale crimson. There is a white woollyness about the head of Flowers which gives the Plant an aspect different from all the others; it is owing to a peculiar light, and white hairy, or rather cottony matter that encircles the base of the separate Flowers, and arises from the Cup.

THIS

SCABIOUS

Pl. f.

13.



Decumbent Scabious.



Feathery Scabious.





SCABIOUS
14.

Pl. 37.



Tels.

Pinnatifid Starry Scabious.

THIS has not the merit of so long continuance in flower as some of the other species of Scabious; but while in bloom, it is as beautiful as almost any of them.

22. PINNATIFID STARRY SCABIOUS.

Plate 37.

Character of the Species.

Scabiosa stellata.

The Leaves are deeply pinnatifid; and the Segments cut again.

Plate 37. *ab.*

THIS is an annual, native of Spain, a very beautiful Plant, of two feet and a half in height, flowering in August. The Stalk is firm, thick jointed, of a pale green, upright, and not very much branched: the Shoots are ascendant as in our Devilbit Scabious, so that there is formed a very fine head to the Plant, with their numerous and large Flowers. The Leaves are of a pale, and somewhat greyish green. The Flowers are of a fine pale blueish crimson; and the heads of Seeds, which have indeed little less beauty than the Flowers themselves, are of a pale but shining brown. These are very lasting, but the Flowers soon fade.

THE Flowers of this Plant are sometimes redder than they are here described, and in that case, the general head is rounder and less spread at the edge. A Plant of this kind I received two years ago from Portugal, gathered at the edge of a vineyard, where it stood overshaded: the Footstalks of the Flowers were also longer than I had seen them; and the Plant, from all these circumstances, had an aspect so different from what is usual, that one less accustomed to strict observation, might easily have supposed it a distinct Species, and have boasted to the world a new Plant. Perhaps many of the Scabious's described by less accurate authors, and which, from the uncertain descriptions, one knows not whither to refer, were of this kind: the differences in the same species are so great, in respect to the size of the head, and length of the Footstalk, that they give often a very different face to the particular Plants; but this appearance of distinction, when examined, vanishes into more or less, which affords no real difference, and the Plants are always to be distinctly known, for their specific characters remain unaltered. I caution the young student particularly in this matter. Let

him establish in his mind a middle state; and the extreams will not perplex him. I have endeavoured every where to give it in these figures; there are many of them whose Heads and Footstalks I have new drawn six or eight times to hit the proper standard.

23. MULTIFID SCABIOUS.

Plate 38.

Character of the Species.

Scabiosa triandra.

The Leaves from the Root are simple, oval, and ferrated; those on the Stalk are divided into a multitude of very slender Segments.

Plate 28. *a b.*

This is a biennial, native of the South of France, a very singular, and very handsome Plant; flowering from June to August.

THE first Leaves are of a deep and very beautiful green; the Stalk is also of a strong green; and its Leaves only a little paler. The height of the Plant is about a foot, and it has not many Branches; those it has are tender, and apt to have the lassum collum of the poet bending under the weight of the Flowers; these are very large, and of an exceeding fine glowing crimson, with some tinct of blue among it, which in certain lights gives it a cast of purple.

THERE is something so singular in the separate Flowers of this Plant, that it would not seem strange to give a new generic character, and place it alone under another name; but many things may be perfectly wrong, which would not seem strange. The great apparent singularity in this Plant, is that the Flower is divided only into three Segments, all the others having four or five; and there is another article, which, though less obvious, will appear to many yet more important; which is, there are only three Chives, whereas the other Scabious's have four. But in answer to all this, the first glance of the eye would teach the common observer to call it Scabious; and frequent inspection of the Flowers will shew that, though usually they are not always trifid.

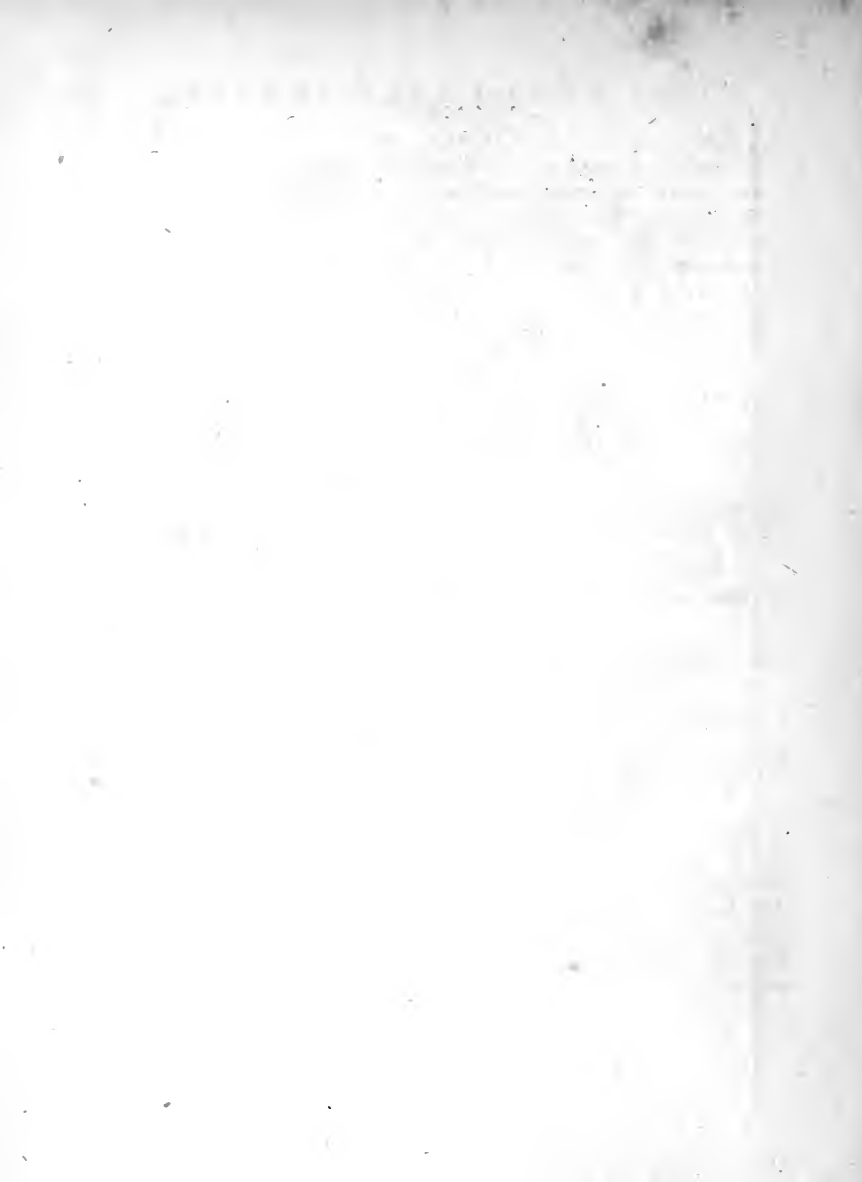
SCABIOUS.

Pl. 38.

15.



Multifid Scabious.



THE three Stamina, if regarded, would remove this Plant out of the fourth into the third Class in the sexual system; but the author of that method has not offered so much violence to nature, as to remove this from the other Scabious's, though different from them according to his characters even in Class. He has retained a distinction between the Flowers with five, and those with four Segments, among the Scabious's; but I have not found it permanent enough for such division. They are figured with each Species as they usually appear; but they vary in their division often.

G E N U S II. ----- I F P E R M A N E N T.

N E E D L E W E E D.

A C U R A.

Character of the Genus.

The Head is convex; and the general Cup is formed of a single range of Films, pointed and edged with hard and bony Thorns, resembling the sharp ends of needles.

Plate 38. o. *ab*.

Of this Genus there is known only one Species.

H A R P ' D N E E D L E W E E D.

Plate 39. Fig. 1.

Character of the Species.

The Leaves are harp'd with broad obtuse Segments.

Fig. 1. *ab*.

THIS is an annual, a firm, upright Plant of regular growth, flowering in August; very glowing in the number, and in the colour of its Flowers; but too stiff and exact in the disposition of them for beauty. The Stalk is hard and almost woody at the base, where it is of a reddish brown, elsewhere it is green and firm, but without that woody hardness. The Leaves are of a good green; and the Flowers are crimson.

It grows to two feet and a half in height, and toward the top sends out a multitude of Branches, all if distinctly regarded in a prolific manner. The main Stem is terminated at about two feet height by one head, which blows earlier, and is always larger, and composed of larger and opener separate Flowers than the others: four Branches usually rise from the bosom of the two upper Leaves; and each of these is terminated in like manner by one head; and from the joint below this grow two Stalks again. In this manner, and this only, the Branches at the head of the Plant rise. It is proliferation, though not so distinctly apparent as in the Scabious thence named, and some others. If I might be allowed a new term, this manner of growth, which is not peculiar to the present Plant, should be called Proliferation with a Footstalk; for take away the Footstalk of the first Flower, and place it fertile on the main Stalk, and every one will see the true Proliferation. The case is the same at the termination of every Branch. We want terms for the distinct manner of the divisions of the Stalks of Plants; it may be well to adopt this.

THE country of this Plant is Italy; if it have any country distinct from my own garden, of which I entertain doubts. It becomes me to deliver them. It's history will give my reasons, and every one will be as able as myself to judge of them.

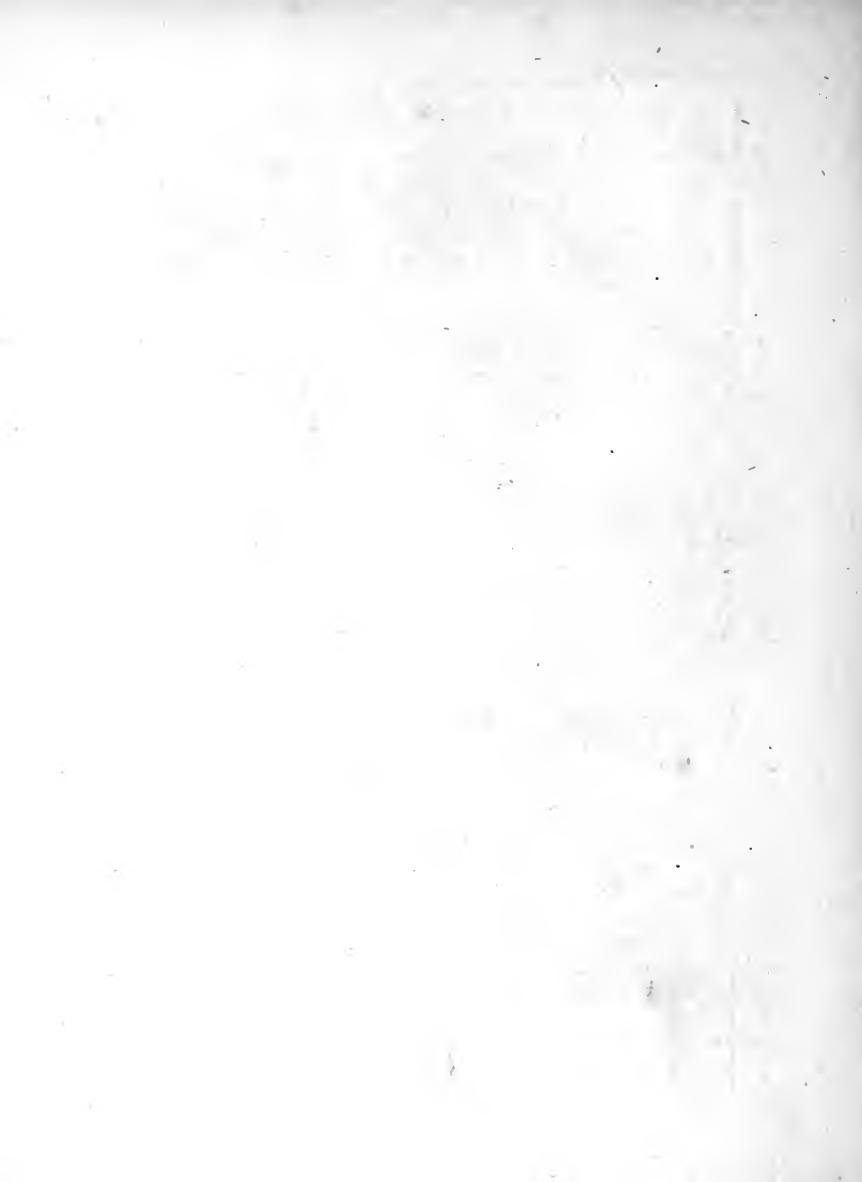
IN the autumn of the year 1760, I received from Italy the Seeds of many Plants then newly ripened. When I had sorted them according to the best guess I could make as to their kinds, they were sown in such places as were proper for the expected Plants, according to the distribution of this work; and consequently the Seeds of many Scabious's, and of two or three Eryngiums, were sown near together: for however authors had received from one another the notion of putting Eryngium among the umbelliferous Plants, I had early established it an Aggregate, as the most exact examination shews it now to be. Some Scabious's and some Eryngiums grew from these Seeds, and flowered in 1761, but there was nothing singular among them. In the spring of 1762, I was first struck with the appearance of a harp'd Leaf, utterly unknown to me, among the Seedlings: there grew up, and flowered
this

NEEDLE - WEED.

Pl. 39



Sharp'd Needle - weed.



this autumn, the Plant here represented; and there seem good Seeds formed.

IF I had known such a Plant before, or if any author had described such a one, it would not have appeared very wonderful to me, that it should appear a second year from sowing, though not the first; for a very little practice in gardening, will shew how apt Seeds are to lie dormant a longer time than that: but as I know of no such Plant, and as it appeared only a second season; and most of all, as it seems to me in its aspect an unnatural Plant, I have suspicions that it is a Mongrel or Mulish Plant, produced between the flat Eryngio, and some one of the Scabious's.

WE know these mixtures sometimes happen among Plants; perhaps they are more frequent than we are aware. In general, the Plants produced thus are soon lost, because their Seeds will not grow; but this is not always the case. I have been told that the Dittany produced between the Sypline and Cretan, produces Seeds which sometimes vegetate; and I can speak with certainty of a Plant between the Welch Veronica and the common kind, of which I have many Plants now raised from Seed, and living.

WE are not now to learn that a Mulish Plant may be produced between two Plants of different Genera; but as the mixture is less regular, perhaps it is a law of nature, that the Seeds of such shall not grow: we speak much in the dark of these things; for they want much, and have had yet very little observation; but from what I have yet seen, I think it will be found that among Mulish Plants, the Seeds of such as are produced between two species of the same Genus, will sometimes, though but seldom, grow; and that by degrees, the new offspring will lose all that it had of likeness to the female, and become the same with the male Plant entirely: on the contrary, that such of the Mulish Plants, as are produced from a male Plant of one Genus, and a Female of another truly distinct, never produce Seeds that will vegetate, however fair they may look, and that by these means, when the individuals so produced perish, the new Plant is for that time lost.

UPON these principles, uncertain as they may be, I shall endeavour to bring the present subject to a tryal. Its own Seeds are carefully sown in a place distinct and distant from that where it now grows; and in an experiment-bed destined for such purposes, the Flat Eryngo, and more than one Scabious, are placed in pairs close together, as if growing from one Root; to assist, if there be any such, the mixt impregnation.

If in this place, Plants of this kind arise, I shall judge it certain that it is Mulish, and rises from this accidental mixture; if its Seeds sown in distant ground produce it, and none rise from the purposely associated Plants, I own I shall begin to judge it a species from the creation, a Plant before unknown. In that case, it will deserve the place it holds here; and the rank of a new Genus must belong to it: but I exceedingly doubt it; for the Cup, though so distant from Scabious, seems true Eryngo; and the harp'd end of the radical Leaf, together with its hollow Footstalk, seem equally the Flat Eryngo; though its Flowers are plain and absolute Scabious; and the wingy Segments of that very Leaf, seem also to belong to a Plant of that kind.

A G G R E G A T E S.
O R D E R V.

Whose particular Cup is til'd, or has several ranges of Segments.

G E N U S I.
G L O B E T H I S T L E.
E C H I N O P S.

Character of the Genus.

The Head is globular; the general Cup is composed of one range of filmy Segments, and is shorter than the Flowers; the separate Flowers are cut into Segments, which turn back at the Points.

Plate 40. o. a b c.

1. MANY

GLOBE-THISTLE.

Pl. 40.



Generic Character.



Multy headed Globe Thistle.

One headed Globe Thistle.



I. MANY HEADED GLOBE THISTLE.

Plate 40. Fig. 1.

Character of the Species.

Echinops Sphærocephalus.

The Stalk is branched; and supports several Heads of Flowers.

Fig. 1. *a b.*

THIS is a perennial, native of Spain and Italy, an upright handsome Plant, of a yard or more in height, flowering in July and August. The Stalk is firm, thick, and brown; the Leaves are of a dark and dusky green on the upper side: but whitish and hoary underneath. The Flowers are naturally of a blueish white, sometimes they are white entirely; and sometimes they are crimson: this is the most beautiful, but the least usual state of the Plant.

2. ONE HEADED GLOBE THISTLE.

Plate 40. Fig. 2.

Character of the Species.

Echinops Ritro.

The Stalk is simple; and supports only one Head of Flowers.

Fig. 2. *a b.*

THIS is a perennial, native of Italy, and the South of France, a very handsome Plant, flowering in August. It grows to two feet and a half in height. The Stalk is rib'd, firm, of a greenish white; and in the wild state is destitute of branches; in gardens it has often more than one; but in this case, each Branch supports only one Flower, so that the character of the species is yet kept distinct; the Leaves are of a pale but pleasant green on the upper side, and white underneath. The Flowers are of a very beautiful blue. The separate Flowers and general Heads, vary considerably in size; they are twice as big in gardens as we see them in wild nature.

G E N U S II.

C L U S T E R T H I S T L E.

R U T H R U M.

Character of the Genus.

The Heads are cylindrick; and many stand clustered together. The general Cup is composed of two ranges of leafy Segments. The separate Flowers are cut into five slender Segments.

Plate 41. o. a b.

I. PINNATIFID CLUSTER THISTLE.

Plate 41. Fig. 1.

Character of the Species.

Echinops Strigofus.

The Leaves are pinnatifid, with wav'd Segments.

Fig. 1. a b.

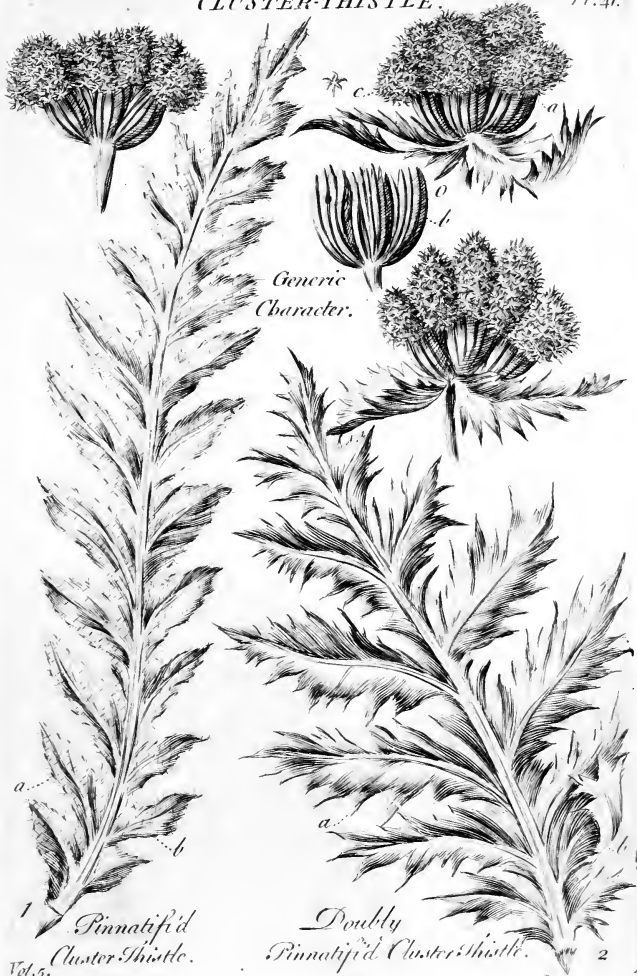
THIS is an annual, native of Spain, and of the South of France, a very pretty Plant, flowering in July and August. The Stalk is white, firm, upright, and but little branched; and grows to two feet high. The Leaves are of a pale whitish green on the upper side, with some stiff hairs upon them. They are altogether white underneath, and weakly thorny at the Point. The Flowers are of a very pale, but very elegant blue; not unlike the colour we see in what are called Water Sapphires by the Jewellers, in which there seems a milky whiteness suffus'd among a good blue.

HERMAN understood this Plant to be a Scabious; we see the utility of observing the separate Cups, and the propriety of forming a distinction upon their structure, superior to Genus, though below a Class.

2. DOUBLY

CLUSTER-THISTLE.

Pl. 41.



Generic Character.

1 Pinnatifid Cluster-Thistle. Vol. 5.

Doubly Pinnatifid Cluster-Thistle. 2



2. DOUBLY PINNATIFID CLUSTER THISTLE.

Plate 41. Fig. 2.

Character of the Species.

Echinops Corymbosus.

The Leaves are doubly pinnatifid; with irregularly cut Segments.

Fig. 2. *ab.*

THIS is a perennial, native of the Greek islands, and of many parts of Europe, as Italy and the South of France; a robust and handsome, though rough looking Plant, flowering in August. The Leaves are broad, and of a deep green; but their Ribs usually are whitish. The Stalk is green, irregularly branched, and two feet high. The Flowers are numerous, and of a deep and perfectly fine blue. They crown the spreading Head of the Plant profusely, and last a long time in their beauty.

G E N U S III.

C U M M I N - W E E D.

L A G O E C I A.

Character of the Genus.

The Head is nearly globular; but a little inclining to oval^a. The general Cup is composed of two Ranges of Segments, feathery at the ends^b. The separate Cup^c is composed of three Ranges of feathery Segments; the outermost consisting of four^d, the next of three^e, and the innermost of two^f. The separate Flower is composed of five Petals split at the ends^g.

Plate 42. *o. a b c d e f g.*

Of this Genus we know only one Species.

W I N G E D C U M M I N - W E E D.

Plate 42.

Character of the Species.

Lagoecia Cuminoides.

The Leaves are wing'd; and their Leaflets are indented.

Fig. 1. *ab.*

THIS is an annual, a small and inconsiderable, but most extremely singular Plant, native of the Greek islands, and of some of the warmer

parts of Europe; flowering in May and June. The Stalk is weak, round, a pale green, and toward the top, branches out wildly. The Leaves are of a faint, and somewhat whitish green. The Flowers are white, with a slight tinge of green or yellowish; sometimes, and indeed always in Greece, white entirely.

THIS is one of those Plants which has perplexed most of the writers in Botany where to place it. The name of Cummin-weed or wild Cummin, given it by our old English writers, like that of Cuminoides, by those of a somewhat higher Class in other languages, shew how very ill they judged of it: the more accurate have been extremely perplexed about its separate Cup, which is the great article for finding its true place under a proper classical distribution. They have supposed it to be two distinct bodies, but it is in nature only one: the parts of which it is composed, rise all from one common base; and it differs from the Cup of the Globe Thistle, only in the Films standing more remote. None will doubt the separate Cup in that Plant being imbricated; nor ought they therefore to doubt the same of this.

A G G R E G A T E S.

O R D E R VI.

Whose particular Cup is formed only of one oval hollow Leaf.

G E N U S I.

B I R D W E E D.

S I G E S B E C K I A.

Character of the Genus.

The Head is flat, loose, and composed of few Flowers.

The general Cup is longer than the Flowers, and consists of five oblong Leaves in a single Range. The separate Flowers are tubular, and cut into five parts; and there are outer Ranges flat, and cut into three.

Plate 43. a b.

1. SIMPLE

CUMMIN-WEED.

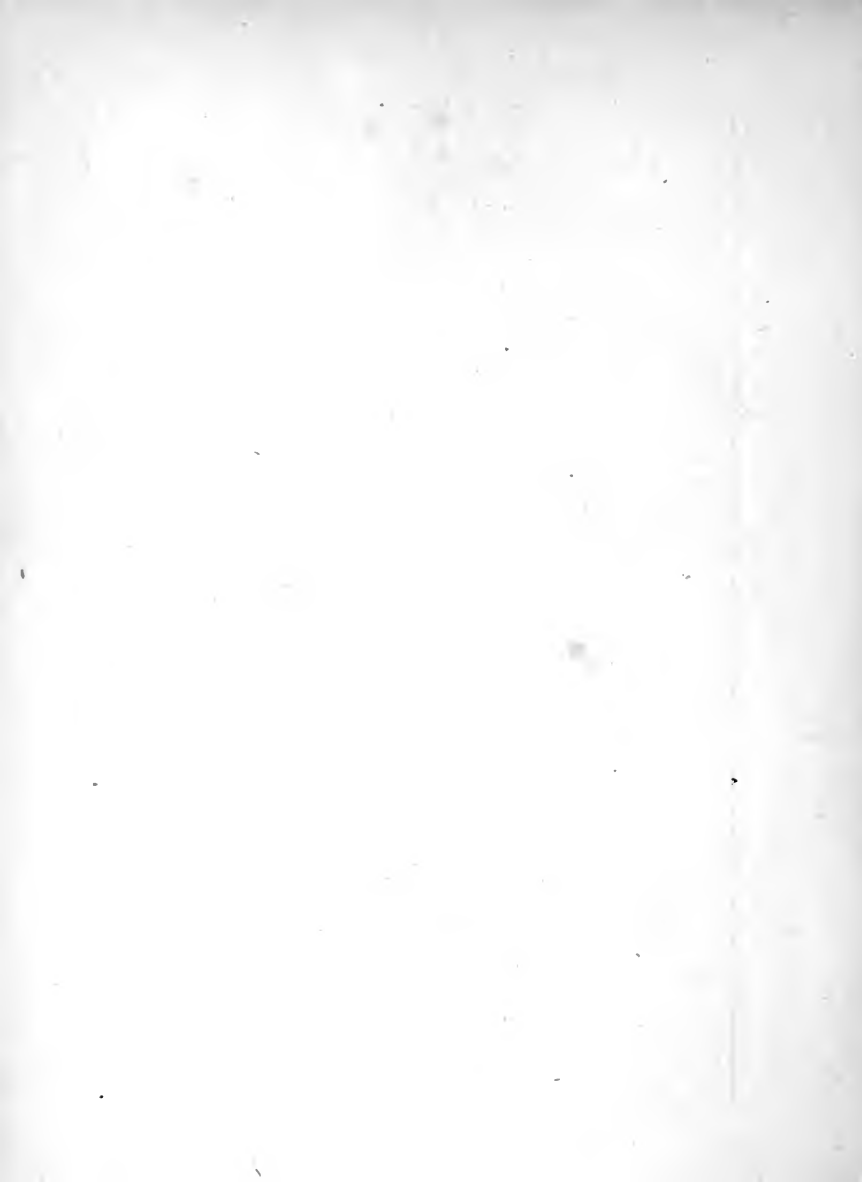
Pl. 42.

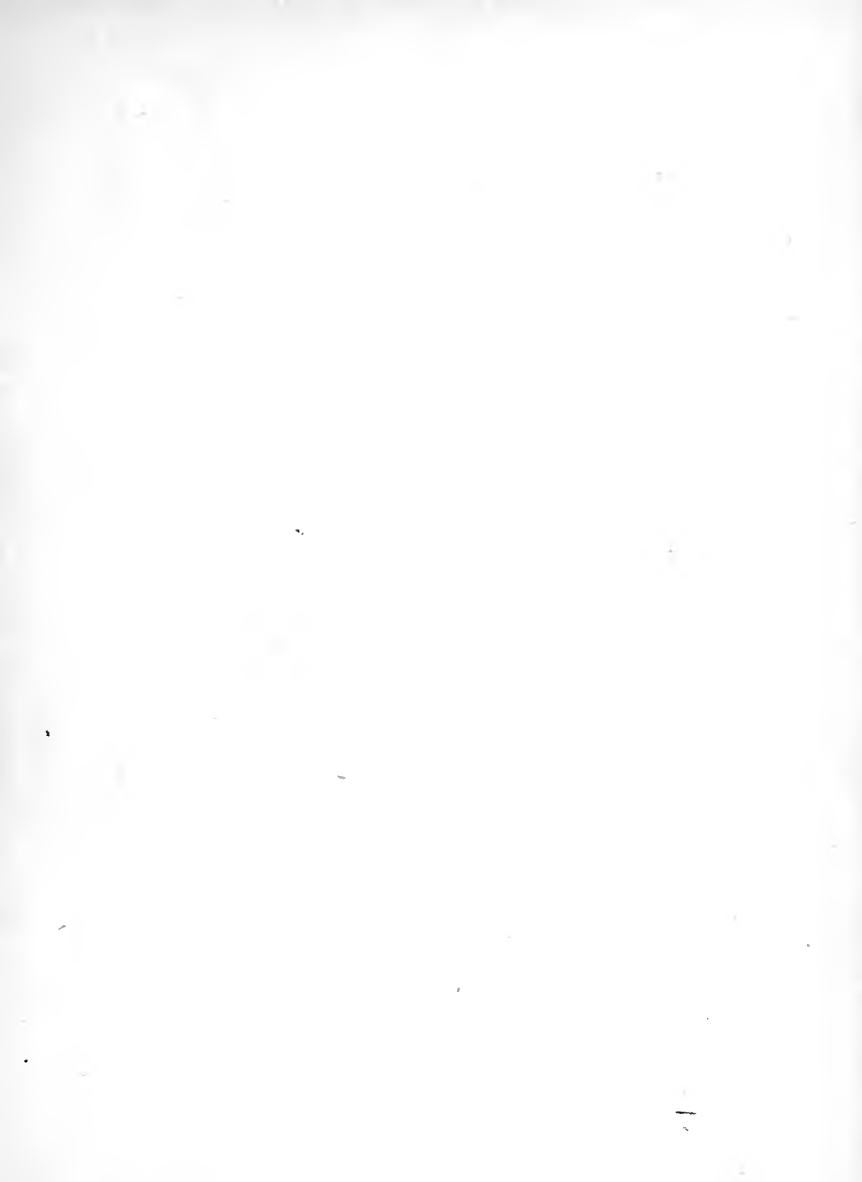


Generic Character.



Winged
Cummin-weed.







Generic Character.



Simple leaved Bird-weed.

Matted Bird-weed.

1. SIMPLE LEAV'D BIRDWEED.

Plate 43. Fig. 1.

Character of the Species.

Sigesbeckia Orientalis.

The Leaves have Footstalks which rise simple and naked from the Stem.

Fig. 1. *a b.*

THIS is an annual, native of China, and the Indies; a Plant of more singularity than beauty, flowering in July and August. The Stalk is brownish, firm, and more than a yard in height. The Leaves are of a bright green; the Flowers are yellow; the Cup is also yellowish, and its glandular hairs are brown.

2. ALATED BIRDWEED.

Plate 43. Fig. 2.

Character of the Species.

Sigesbeckia Occidentalis.

The Leaves have winged Footstalks, which run down the Stem.

Fig. 2. *a b.*

THIS is a biennial, native of Virginia and Carolina; a singular and not inelegant Plant; flowering in July. The Stalk is of a reddish brown, but edg'd with green from the Footstalks of the Leaves in a very pretty manner. It grows to near two feet in height. The Leaves are of a dark green; and the Flowers are yellow. The Heads in this species are apt to drop their outer Cups, as some of the Radiate Flowers do their Rays. 'Tis necessary to name this; or it might perplex the student.

THESE are Plants of that kind which naturally perplex the inventors of artificial systems; for they carry the proper marks of different Classes: but they are of infinite value in the method of nature. They are the frontier kinds, between the Radiate and Aggregate Plants, joining the two Classes, but belonging distinctively to neither. They have the marks of both; and we have repeated them under each. They belong to the Radiates by the union of their Chives; to the Aggregates, by their general and separate Cups.

AGGREGATES.

A G G R E G A T E S.

O R D E R VII.

Whose particular Cup is formed of several oval hollow'd
Leaves.

G E N U S I.

C R O W N W O R T.

S T O E B E.

Character of the Genus.

The Head is oval. The general Cup is formed of two ranges of leafy Segments; which are soft, wavy, and sharp pointed. The separate Flowers are tubular, with a spreading Rim cut into five short Segments.

Plate 44. c. a b.

Of this Genus we know but one Species.

H E A T H Y C R O W N W O R T.

Plate 44. Fig. 1.

Character of the Species.

Stœbe Æthiopica.

The Leaves are linear, clustered together on the Stalk, and drooping at their Points.

Fig. 1. a b.

THIS is a perennial, native of the Cape of Good Hope; a very odd looking Plant, but of no great beauty; flowering in July and August. It grows to two feet and a half in height; the main Stem is brown and woody; the young Shoots are of a greyish white; the Leaves are of a pale grey also, with scarce any tinge of green. The Flowers are yellow. They are not very conspicuous; for neither they nor the Heads are large, but when closely examined they are seen very prettily disposed: they cover the exterior part of the Head in little yellow shining stars, which are every where intermixed with small silvery scales. These

CROWNWORT.

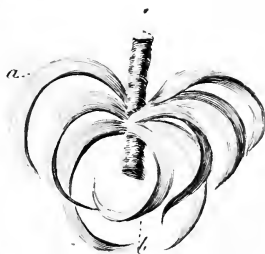
Pl. 44.

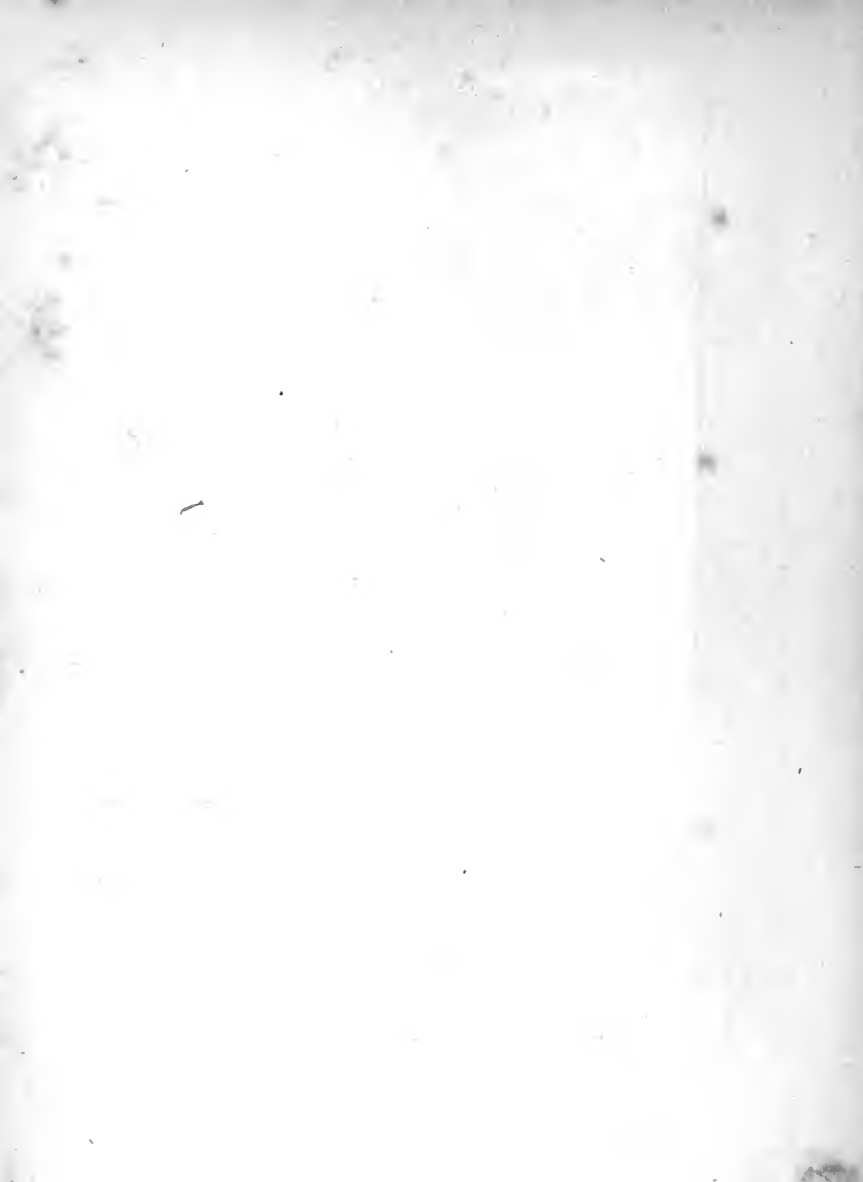


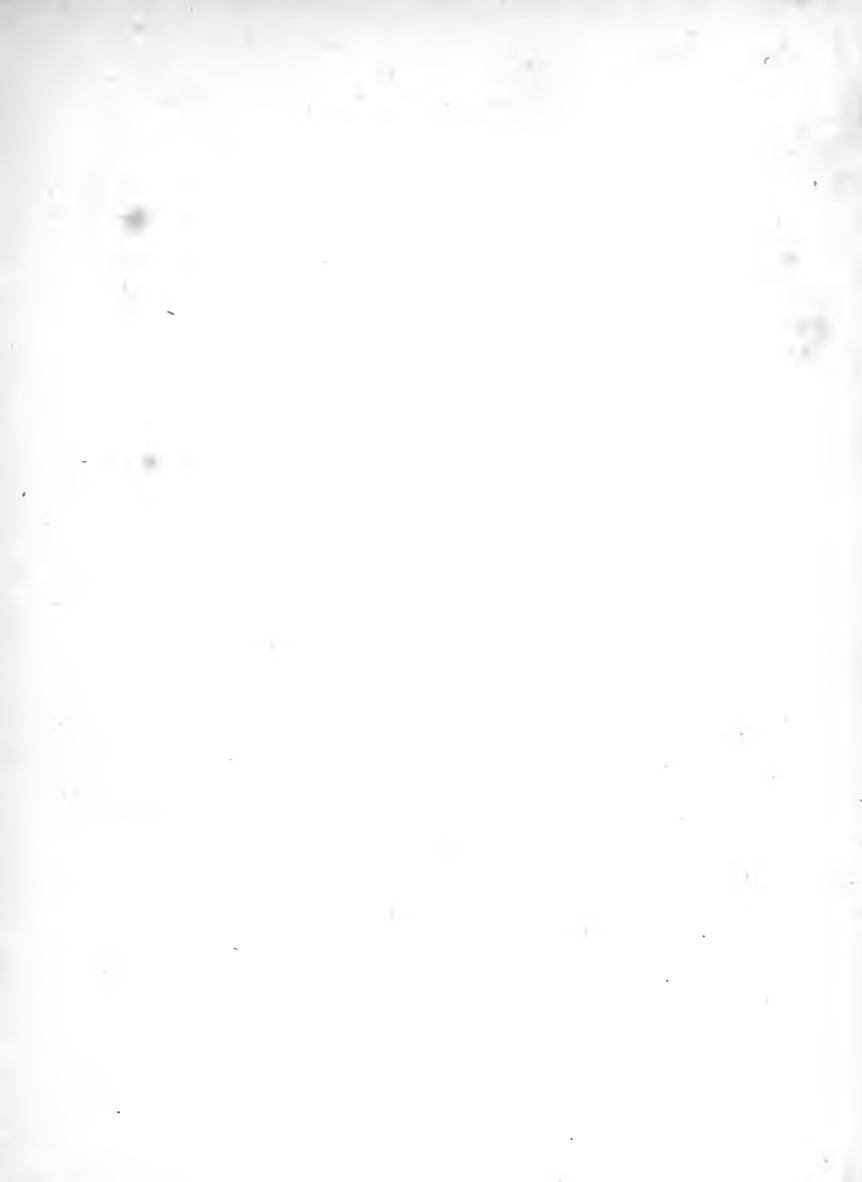
Generic Character.

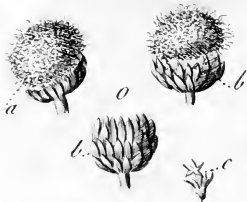


Heathy Crownwort.









Generic Character.



Jointed Thread-wort.



Downy Thread-wort.

are only little Films from the receptacle, such as may be found in most of the Aggregate Class, separating Flower from Flower; but in these Plants, their large size and silvery appearance, makes them more observable. Let none wonder they are not named in the character of the Genus; a Plant may be a true Stœbe without them; and in other instances, their variations are so great, and their presence or absence of so little import, that they have no proper place in such characters: for the shorter these are, so they be perfectly distinct, the better.

G E N U S II.

T H R E A D W O R T.

B R U N I A.

Character of the Genus.

The Head is convex; the general Cup is hemispheric, and composed of a great number of oval pointed Scales in many ranges. The separate Flowers are formed of five Petals, narrow at the Base, and spreading at the Rim.

Plate 45. o. a b c.

I. JOINTED THREADWORT.

Plate 45. Fig. 1.

Character of the Species.

Brunia nodiflora.

The Leaves grow in fours, surrounding the Stalk, and forming the appearance of a kind of Joints.

Fig. 1. a b.

THIS is a perennial, native of the Cape of Good Hope; a very beautiful, though low Plant, flowering in June and July. It grows to more than two feet in height; but the Stem is weak, though woody at the base, and usually leans for some part of its length upon the ground. It is brown or reddish in that part, but elsewhere pale and greenish. The Leaves are of a very strong and fine green; the Flowers are of a fine, though pale crimson, abundantly making up in the elegance of colour what is wanting in its strength.

2. DOWNY THREADWORT.

Plate 45. Fig. 2.

Character of the Species.

Brunia lanuginosa.

The Leaves are linear; and spread away from the Stem.

Fig. 2. *a b.*

THIS is also a perennial, native of the Cape of Good Hope; a weak, but woody Plant, of two feet high; flowering in August. The Stem is tinged with crimson; the young Shoots are white and downy. The Leaves are of a whitish green; and covered lightly with the same white Down. The Flowers are of a strong and glowing crimson. They are so numerous, that they give a wonderful grace and beauty to the Plant above its fellows. It naturally spreads out into a number of Branches toward the top, all covered with bloom; and these joining give the appearance of a vast crimson Umbell.

3. EYELASH'D THREADWORT.

Plate 46. Fig. 1.

Character of the Species.

Brunia ciliata.

The Leaves are lanc'd, and have a range of stiff and firm Hairs, like those of the Eyelashes, surrounding them upon the edge.

Fig. 1. *a b.*

THIS is a perennial, woody Plant, native of the sides of hills about the Cape of Good Hope, which it in a manner covers in some places for many acres together, as heath does our Commons, and spreads over them for many months a continued glow of fleshy crimson. The Stem is brown and tough, and usually lies upon the slanting ground for the greatest part of its length. The young Shoots are tender, and of a pale green; and these rise a foot and half or more from the ground. The Leaves are of a bright, but pale green; and the Flowers are of the faintest crimson that can be conceived; but this is a very pretty colour: it is nearest what our gardeners call the Maiden's Blush in certain Roses and other Flowers, of any thing in Europe; but it is truly altogether singular; and the Flowers have a colour as well as form perfectly unknown to us here. It flowers in July and August.

4. SCALY

THREAD-WORT
2.

Pl. 56.

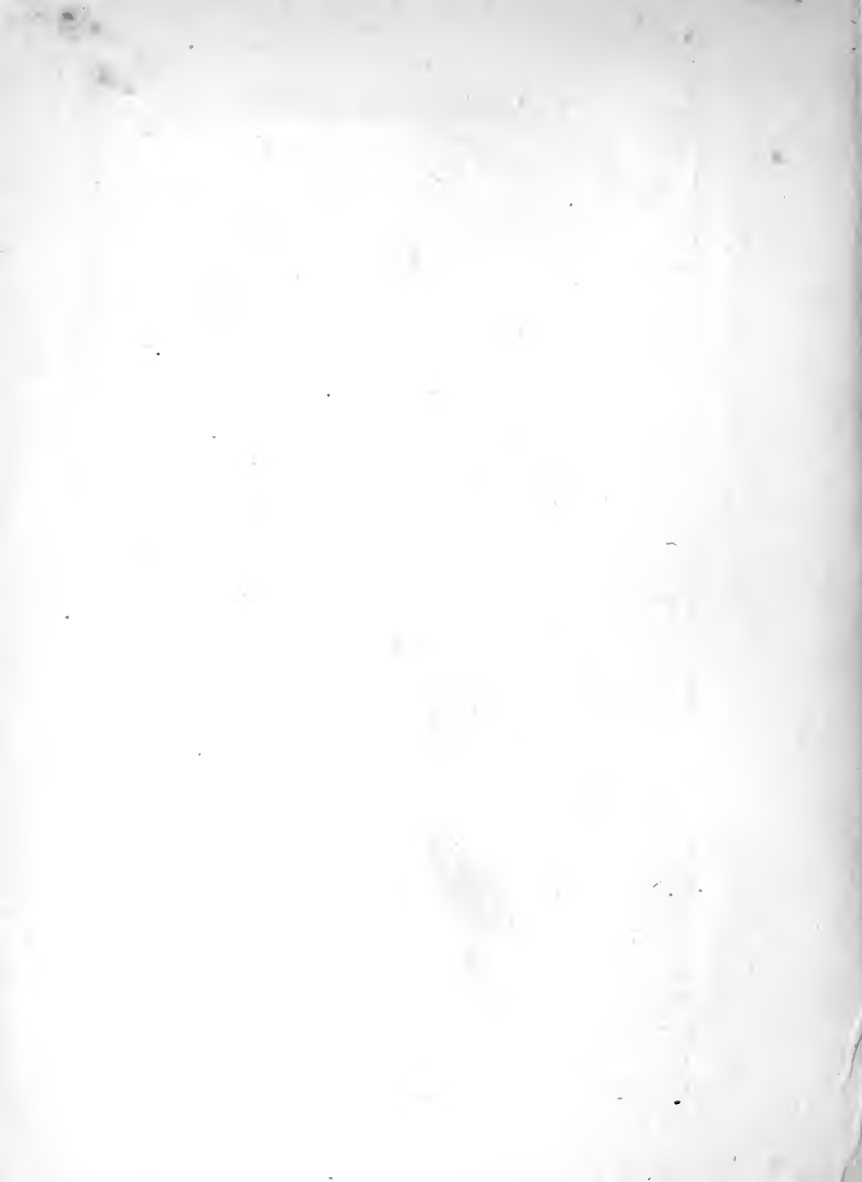


Eyelash'd Thread-wort.



Scaly Thread-wort.







THREAD - WORT

3.

Pl. 47.



Woolly Thread-wort.

4. SCALY THREADWORT.

Plate 46. Fig. 2.

Character of the Species.

Brunia Abrotanoides.

The Leaves are lanc'd; and they cover the Stalk like scales of fishes.

Fig. 2. *a b.*

THIS is also a perennial, woody Plant, native of the Cape; and of very singular beauty. The Stem is brown; the Branches are crimson; but they are in most places so covered with Leaves, that it is scarcely seen; these are of a dead whitish green. The Heads are larger than in any other of this Genus; and the Flowers are blue; their colour, like that of the former, is scarce to be described; and is so unlike all that we usually see under that name in the Flowers of Plants, that the first sight of it astonishes and confounds one. It is a very pale blue, and seems throughout suffused with white; but there is a delicacy in its paleness, quite different from all we are acquainted with, except among the Gems; for there are certain pale sapphires like it; but these must be yet paler and brighter to answer the resemblance, than those mentioned on a former like occasion. It flowers in its native soil the greatest part of the year; with us in August.

5. WOOLLY THREADWORT.

Plate 47.

Character of the Species.

Brunia levifana.

The Leaves are oval and obtuse; and they are covered with an exceeding fine short woolly matter.

Plate 47. *a.*

THIS is a perennial, woody Plant, as the four preceding, native of the same place, and, like them, of very great beauty. We admire many things from the Cape of Good Hope; but scarce any deserve that admiration more than these. The Stem of this is usually brown, with a tinge of crimson. It lies upon the ground in part; and what rises up seldom exceeds a foot and a half in height. The Branches are innumerable; they are crimson, but it is a colour rarely seen, the Leaves cover them so entirely; they spread widely and wildly toward the top, and one Plant will thus afford a crown of three feet square, set loosely and irregularly, but very beautifully, with vast Heads of Flowers. The

L

Leaves

Leaves are white, and soft to the touch; the downy matter with which they are covered, is more sensible to feeling than to sight. The Flowers are of a very fine, but light crimson.

ABOUT three years ago, I received from the Cape, a Branch of this with the Leaves perfectly smooth, destitute altogether of that downy matter I had before seen upon them, but in all respects else perfectly the same. It is an accident not peculiar to this Plant, but has been seen on many of the Cape products; Burman also mentions it on this occasion. Let the student who has opportunity of obtaining Plants from that part of the world, be upon his guard, not be deceived by it; he may fancy many species, where there is but one, merely from this variety.

G E N U S III.
E R Y N G O.
E R Y N G I U M.

Character of the Genus.

The Head is oval, compact, and formed of many Flowers.

The general Cup is longer than the Flowers; and is composed of six thorny Leaves. The separate Flowers are composed each of five oblong Petals, turning back at the end.

Plate 48. o. a b.

I. T R I F I D E R Y N G O.

Plate 48. Fig. 1.

Character of the Species.

COMMON ERYNGO.
Eryngium Campeftrre.

The first Leaves from the Root are oval and undivided; only wav'd at the edge; the rest are pinnatifid, and terminate in three points.

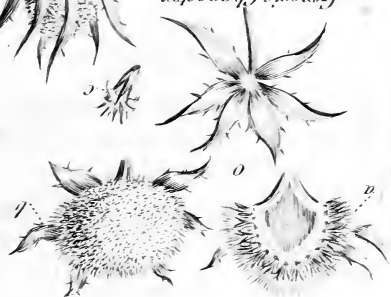
Fig. 1. a b.

THIS is a perennial, native of our way sides in some parts of England; and to the distress of farmers, also of our corn-fields; where, when once in possession, it is very hardly got out, for the Roots are very difficultly broken, and every piece will grow. The Plant is near a yard

Staph. cynops.



Generic Character.



FRYXGO.

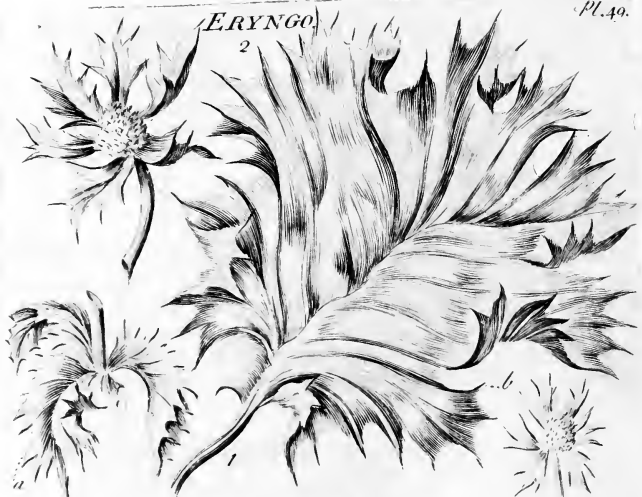




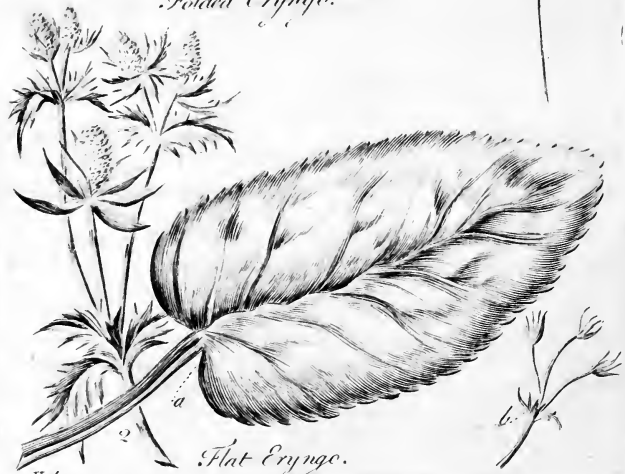
ERYNGO

Pl. 40.

2



Folded Eryngo.



Flat Eryngo.

yard high, and branches into a multitude of spreading twigs; these are of a pale green. The Leaves are very handsomely cut; and what forms the trifid end of them, is no more than the two extrem side Segments, growing to that at the end. Their colour is a pale yellowish green, faint but not disagreeable. The Flowers are blue, but it is not a fine or pleasing colour; and sometimes they become of the mere colour of the Leaves, a yellowish green. They blow from June to September.

THIS is the Plant whose Roots are celebrated in medicine, and they deserve all the praise that has been given them. They are excellent in all disorders arising from obstruction: I have seen the jaundice cured by them alone; and in the gravel they are safe and excellent; as also against asthma's, and other disorders of the breast and lungs; but they trifle who eat them candy'd for this purpose; the virtue is lost in the preparation.

It has been a custom to range the Eryngium among the Umbelliferous Plants. Our reason for placing it among the Aggregates, needs no other authority than the view of the Head, or the comparison of its Figure here, with those of Scabious and Dipsacus, the avowed Heads of the Aggregate Clafs.

2. F O L D E D E R Y N G O.

Plate 49. Fig. 1.

SEA HOLLY.

Eryngium maritimum.

Character of the Species.

The Leaves are wavy'd, and thorny at the edges; the lower ones are roundish, and elegantly plaited in regular folds.

Fig. 1. a b.

THIS is a perennial, native of our sea coasts in most parts of the island; and like the preceding kind, common also to almost every part of Europe. It is a robust Plant, of a foot and a half high; and flowers in June. The Stalk is round, thick, firm, and hard. It is reddish toward the base, but of a blueish green upwards; the Leaves also are of a blueish green, but with blackish thorns; and they are thick and fleshy. The Flowers are of a pale blue, not much differing from the colour of the rest of the Plant, but more bright and shining.

THE Root of this species has the same virtues with that of the preceding, but in an inferior degree. The antients eat the tender Leaves of both, as they did of the Burdock, and many of the Thistles.

3. FLAT ERYNGO.

Plate 49. Fig. 1.

Character of the Species.

Eryngium planum.

The radical Leaves are all simple, flat, lightly wav'd or nick'd at the edges; and have hollow Footstalks. The Heads are plac'd on Footstalks.

Fig. 2. a b.

THIS is a perennial, native of Swisserland, and most other parts of Europe; a tall, handsome Plant, of regular growth and singularly pleasing appearance; flowering in July and August. The Stalk is a yard high; tough and firm; very glossy on the surface; naturally of a faint and simple green, but sometimes of a shining blue, and sometimes of a shining white; in either of which states it is very beautiful. It rises single from the ground; but spreads into a large, though compact head; its growth from the first Flower being what we have called Proliferous, with a Footstalk, as in most other of the Eryngos. The Leaves are as the Stalks in colour, pale green, blueish or whitish; and so it is with the Flowers: they are finest of all when blue. These variations in colour are very striking at first sight; but the Plant is perfectly and entirely the same in all. They have done idly who gave the several appearances names; *Eryngium planum viride*, *planum cæruleum*; *planum Album*; for there is not the least difference else in the several Plants.

4. SWORD LEAV'D ERYNGO.

Plate 50. Fig. 1.

Character of the Species.

Eryngium foetidum.

The Leaves are oblong, sword-shap'd, saw'd and thorny. Those on the lower part of the Plant are simple; those toward the top divided.

Fig. 1. a b.

THIS is a perennial, native of North and South America, common to Canada and Jamaica, to Pennsylvania and Peru. We are accustomed to

ERYNGO
3.

Pl. 30.



1 Sword leaf'd
Eryngo.

2 Needle Eryngo.



receive it from Jamaica, and have therefore placed it in stoves; but the Plant will live and thrive in open ground. It grows to a foot and a half high. The Stalk is weak but tough; of a reddish green toward the base, and pale upwards. The Leaves are also of a pale green; and when bruised have an unpleasing scent. The Flowers are small and white.

It is worth while to raise this Plant in quantity to try its virtues. The Indians, who have taught us more and better medicines, than we ever taught ourselves, call it by a name that expresses Fever Plant; our people in the colonies have learnt its use from them, and extol it highly; but I don't know that it has ever been try'd in England.

5. NEEDLE ERYNGO.

Plate 50. Fig. 2.

Character of the Species.

Eryngium Aquaticum.

The Leaves are lanc'd, serrated, and terminate in a strong and slender Spine, like a needle. They retain their undivided form to the top.

Fig. 2. *a b.*

THIS is a perennial, native of Virginia, and other parts of North America; an upright, but not very beautiful Plant; flowering in July. The Stalk rises to near two feet in height, and is tough, firm, smooth, and pale. The Leaves are of a greyish green; and have a thick fleshy substance. The Flowers are white.

THIS is another of the Plants famous among the natives of America for its medicinal qualities. They call it by a name which signifies Rattle-Snake Weed. There are several Plants which they suppose to have the virtue of curing those who are bitten by venomous serpents, and this is one, and not the least respected among them. It is not strange their first physick should be for the cure of bites of venomous creatures: their life in the woods made them always liable to those accidents.

6. PALMATED

6. PALMATED ERYNGO.

Plate 51. Fig. 1.

Character of the Species.

Eryngium Tricuspidatum.

The radical Leaves are heart-shap'd; and wav'd along the edges. Those on the Stalk are palmated and curl'd.

Fig. 1. a b.

THIS is a perennial, native of North America; a tall and handsome Plant, flowering in August. The Stalk is two feet and a half high, firm, tough, upright, and, toward the top, spreads out into a great many Branches. It is of a pale, greyish green, and smooth on the surface, naturally shining. The Leaves are of a pale, greyish green, with some little tinge of yellowish; the Flowers are nearly white.

THOSE who search for marks of distinction among the more minute and inconspicuous, or at least unobvious parts of Plants, may find one in the Head of this Eryngo; by which, if they please, they may separate it from the rest, and make of it a new Genus. The Heads of all the Plants of this kind, have a kind of chaffy Films placed between the Flowers. Those in the generality are simple, but in this Species they terminate in three points.

IT is not of any importance to the Plant, or to its generic Character, whether there were any of these Chaffs or not among the Flowers, as has been observed in speaking of the Stæbe: much less need we in that character regard their form. I do not know that any has yet separated this from the Eryngo's on that occasion; for the Plant is little known: I only name the impropriety of such separations, of which we have instances on less causes even than this; and would have the Student keep always in mind, that little regard is to be shewn to little parts; and that, when other things are equal, the most conspicuous marks are always best.

7. FORKED ERYNGO.

Plate 52. Fig. 1.

Character of the Species.

Eryngium pufillum.

The Stalk splits forkwise into two at the Head; the Leaves are lanc'd and ferrated.

Fig. 1. a b c.

THIS is a perennial, native of Spain and Italy; a low Plant, of no great beauty; flowering in July and August. The Stalk is round, tough,

of

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4.

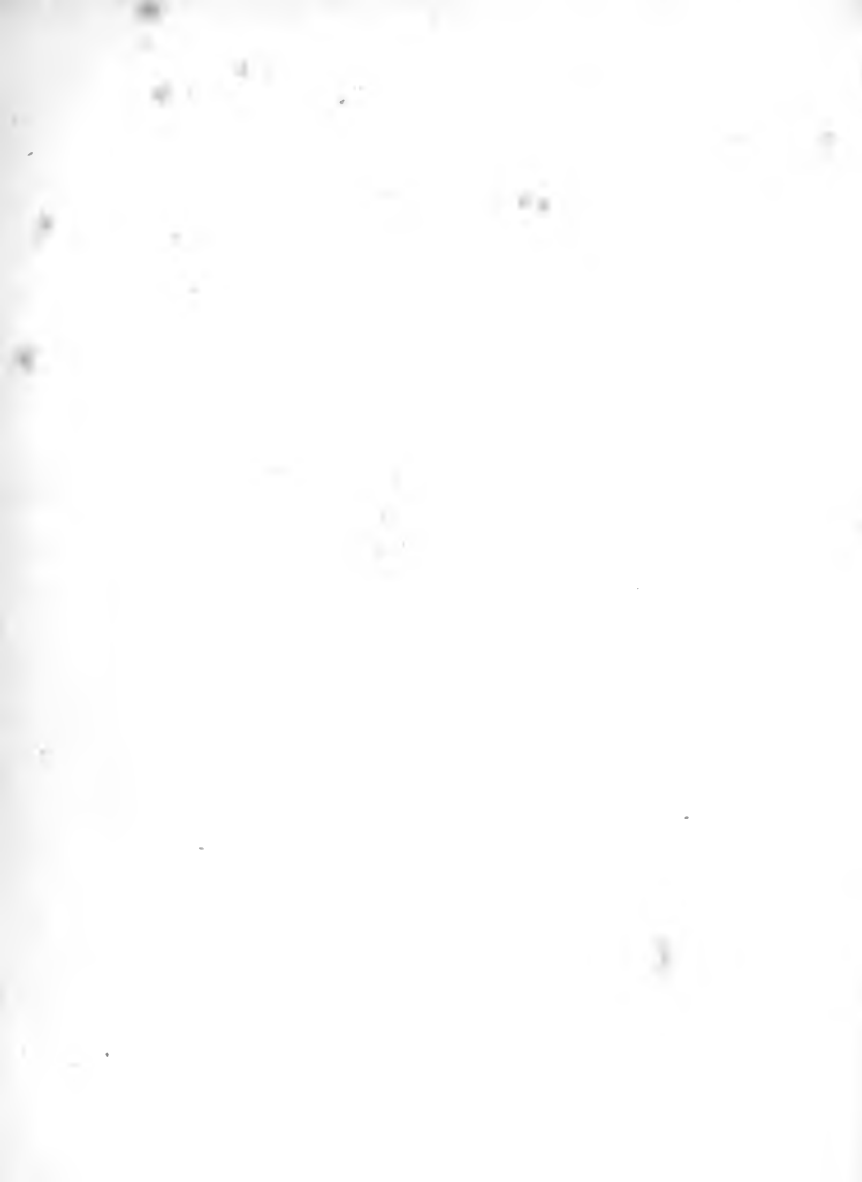
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Palmated Eryngo.

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ERYNGO

Pl. 52

5.



Forked Eryngo.



Tender Eryngo.

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of a pale green; and lies in part upon the ground. It seldom grows to more than a foot in height; and its Colour is a pale whitish green. The Leaves are of a bright and pleasing green; the Flowers are of a bluish white; they are not large; but they fit so close upon the Stalk, that their singularity gives them an aspect of prettiness, which generally makes the Plant taken notice of among such as are handsomer.

8. T E N D E R E R Y N G O.

Plate 52. Fig. 2.

Character of the Species.

Eryngium Alpinum.

The Stalks are weak; the lower Leaves are heart-shap'd, and saw'd at the edge; the others are pinnatifid with a broad base.

Fig. 2. *a b c.*

THIS is a perennial, native of the mountains of Swisserland, and of some other parts of Europe; a very pretty Plant, of a foot and a half or more in height; flowering in July. The Stalk is tough, but weak. It naturally bends, but does not easily break; the Leaves are of a faint green; the upper ones are of a firm substance, and are thorny at the ends and points of the divisions. The Flowers are of a very fine blue, and make a handsome figure at the tops of the branches, part of which is usually ting'd to some distance below them, with the same glowing colour.

THE Root of this kind, when dry'd, has a very fine aromattick flavour, light and without heat. It resembles the taste of the common Eryngo Root, but is vastly more delicate. The Plant is common enough where it is native; and it would be worth while to import a quantity of its Root for trial in medicine.

9. A M E T H Y S T I N E E R Y N G O.

Plate 53. Fig. 1.

Character of the Species.

Eryngium Amethystinum.

The lower Leaves are handed, and in the circumference nearly round; they are composed of many plaited and thorny divisions.

Fig. 1. *a b.*

THIS is a perennial, native of the Apennines; an upright, robust, and very beautiful Plant, of two feet high; flowering in June and July.

The

The first or lower Leaves, are of a very fine, though pale green, with white ribs, hard, solid, and glossy; and have often a blotchy mixture of a deeper green, so that they have a variegated aspect. The Stalk is upright, thick, tough, and firm; it rises single, and does not branch much, till near the top; where it throws out a great many Shoots, which form together a thick and large Head. These Branches, and a part, if not the whole of the Stem, for this depends on accidents, are of the most delicate colour that can be imagined. It is blue with a mixture of purple; a tinct too glowing, and too fine to be described, otherwise than by the allusion to that Gem from which the Plant takes its name; for it is of the hue and lustre of the most perfect Amethysts. In its native place, the Plant is always coloured thus in the Stalk to the ground; with us, where too rich a soil gives it more height and largeness, the lower part is white; and where this is the case, the colour of the top is not so glowing. When this glow is perfect, it is a Plant to be seen and admired from a distance; and more so, every step that one advances to it. The Flowers are of a fine blue, with somewhat of the amethystine tinge; but their colour is not nearly so bright as that of the Stalk.



F I N I S.

ERYNGO

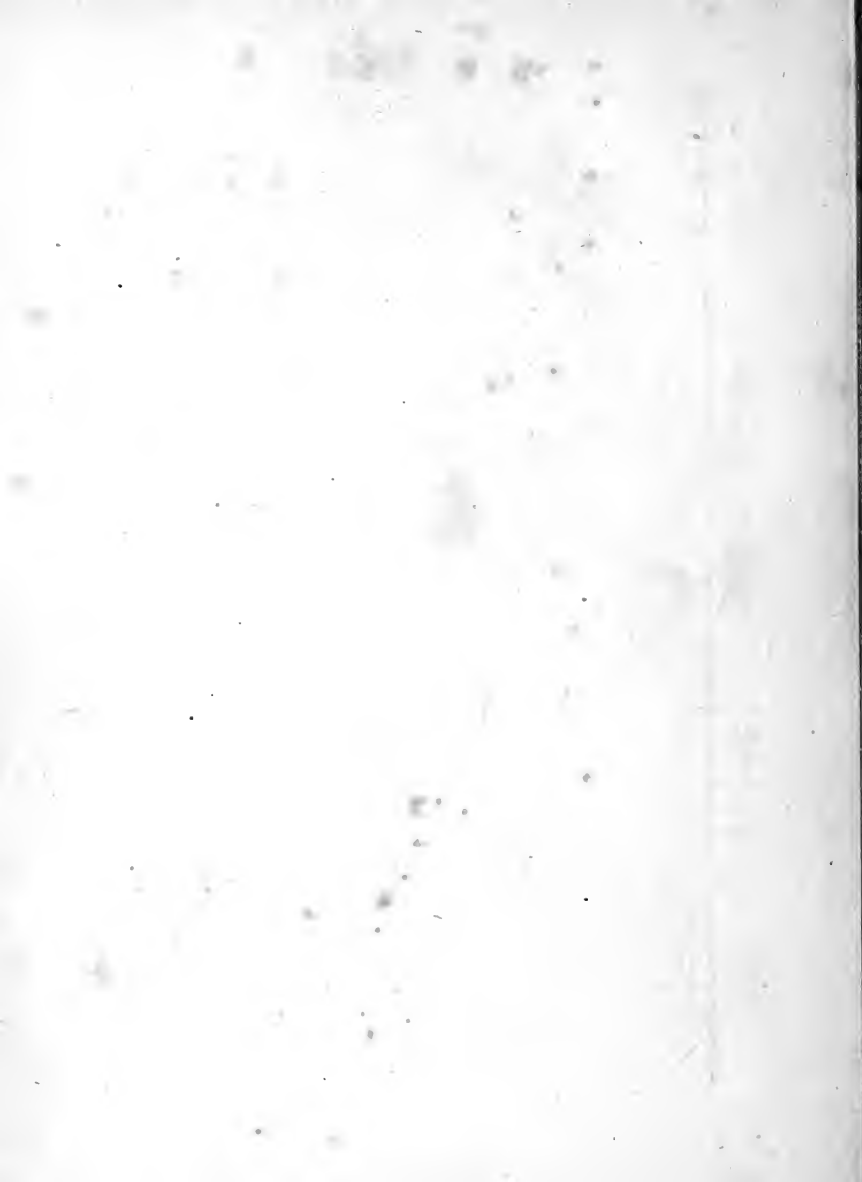
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Amethystine Eryngo.

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